

# BOARDWATCH

## MAGAZINE

**Guide to Internet Access and the World Wide Web**

[www.boardwatch.com](http://www.boardwatch.com)

The Official Publication of ISPCON

## JUNIPER TEAM

**Ready to Challenge  
for Control of the  
Internet Core**

**Sprint Drops  
Another  
Pin – ION**

**FCC Needs  
to Hear  
Your Telco  
Nightmares**

**Filtering Spam from  
the E-mail Master**



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Founder, Chief Technical Officer

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Founder, Technical Staff

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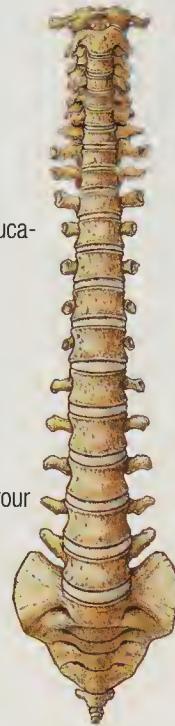
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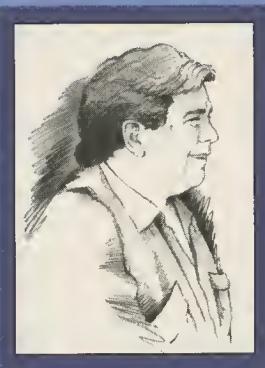
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AUGUST 1998



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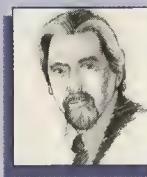


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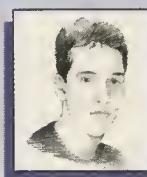


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# EDITOR'S NOTES

by Jack Rickard

## MERGERS AND MAYHEM

I just can't wait to use an Internet designed after the fashion of school busing circa 1975.

Not that it works with terrifying precision today. But there is hope on the horizon for it to devolve into a form of packet chaos beyond my limited powers of comprehension. If we can somehow lure government regulators into

taking a role in entering BGP route advertisements, we can really fix it this time. And to misquote my own hero/philosopher, Pogo, we have met the enemy and he is us.

The companies and industries springing from the development of personal technologies such as the personal computer, online communications, et. al. have enjoyed a long period of *laissez faire* from government regulators. In general, technological developments occurred so frequently, with such speed, and changed markets so dramatically with each introduction, that anyone outside the industry was hard pressed to comprehend it all, much less spew forth rules about it. For that matter, those INSIDE these industries didn't know either.

What emerged was a savagely competitive world where your entire business plan, along with your business, could be pretty much wiped out by a morning press release from someone announcing a technology that made you irrelevant. The governmental role was pretty much relegated to putting a hand in the pocket of anyone who did succeed and filching half of the proceeds to fund projects like determining if pigs sweat.

The common myth is that government is ever anxious to storm in and regulate everything, and that there is an army of bureaucrats sitting around puzzling out what they might regulate next.

It doesn't quite work out that way. In essentially all cases, industry regulations come at the shrill wail and behest of the industry itself. We not only invite them in, normally we demand they do something. And so they do.

We currently enjoy the season of maturation of almost the entire breadth of the high technology industry, wherein we are squealing and demanding that the government DO something about all these people winning billions in these industries. They're just doing TOO well and SOMETHING must be done about it.

Microsoft would be the example of choice if the field wasn't so crowded. They did in fact set out to deliberately destroy Netscape by creating a competitive browser and including it in the operating system at no extra cost. While it's not the first (remember DelRina and WinFax Pro?), the Netscape browser itself was freely available to all who could click. Scott McNealy of Sun Microsystems and James Barksdale of Netscape, two

potential losers of almost heroic proportions in the marketplace, have demanded that somebody do something.

Intel is now under investigation by the FTC for equally tyrannical practices with its microprocessor architecture.

Qwest Communications came up with a fascinating marketing plan to let local RBOCs sell long distance service, while Qwest actually provided it, thus working around the prohibition to exclude RBOCs from the long distance market. AT&T immediately filed suit and a Seattle judge immediately threw the potato the FCC's way for a ruling. AT&T wants the government to do something.

The battle closest to home for us is the WorldCom/MCI merger. The fear is that in combining two of the three largest backbones on the Internet, WorldCom would be in a position to dictate peering, pricing, etc., for everyone. The FCC, the Justice Department, and the European Economic Council have all gone after this one.

Several months ago we made several predictions about this merger. First, that it would not have the smooth sailing everyone predicted. It was in trouble from announcement. And again, GTE and other competitors filled the Justice Department ear, as well as filing suit in case anyone missed the point. And it is probably true that a MCI/WorldCom alliance would indeed spell the end of a competitive Internet.

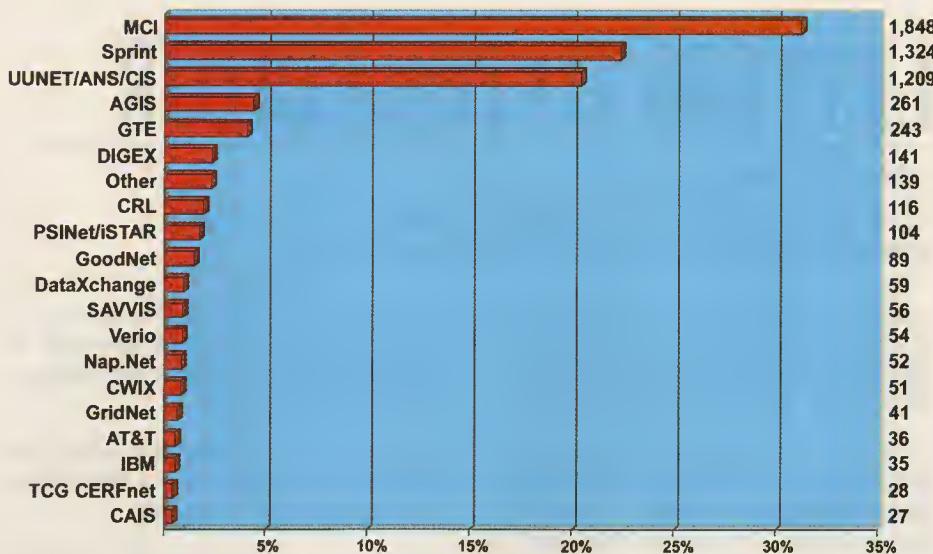
But the dance that has emerged over this one is somewhat precious. First, everyone released data showing everything in the way of market share. Oddly, the only piece that was taken credibly by anyone was a simplistic chart we published of Internet service providers and who they were connected to. It illustrated that the combined UUNET/ANS/COMPU-SERVE/MCI connections would total over half of the ISP connections to the Internet. This isn't precisely an estimate. We have data on over 4,000 ISPs, and they tell us who they connect to. A few don't tell us, and Traceroute is pretty easy to use to fill in the blanks.

In any event, this little chart became something of a central item in the discussions. So MCI recently announced they would sell their Internet business to Cable & Wireless for some \$625 million. A bit closer examination indicated they would sell the currently aging backbone infrastructure, and all the connections to the ISPs. They would retain all commercial business and consumer accounts. I was breathless waiting to see if anyone would buy this child mind ploy and was delighted to learn that no one outside of Bert Roberts himself was the slightest bit fooled. The weight of commercial business accounts held by MCI is actually MORE dominant than their dominance of ISP connections, though roughly analogous.

Fortunately, the regulators on both sides of the Atlantic saw through this one. And MCI is currently trying to engineer a sale

## Backbone Market Share

### Of 5,913 Backbone Connections from 4,470 Internet Service Providers



of their entire Internet holdings to satisfy the regulators. The WorldCom/MCI merger is in the awkward position of having been approved by shareholders of both companies. Whatever the original reasons for the merger, and we think they were strongly Internet related, at this point the feeling is that the merger has to happen whatever the cost.

Cable & Wireless actually filed suit to prevent the "new deal" which hasn't actually emerged yet, from snatching their prize away. But the original agreement included a \$25 million escape clause allowing MCI to walk from the deal by coughing a \$25 million penalty to C&W. So the suit didn't make it past the first bench.

EU regulators meet July 8 to make a final determination on the merger, and MCI is expected to spew forth whatever Internet sections are necessary to make the merger happen. This must be a bitter pill for John Sidmore of UUNET and the WorldCom hierarchy. They recently noted that Internet access and related services constitute some 25 percent of WorldCom's gross income, but over 50 percent of their current growth, and that demand for bandwidth was running at 1000 percent growth per year. InternetMCI was undoubtedly their largest competitor. I suspect that the Internet side of MCI, though dwarfed in the financials, was the driver behind the original merger concept.

But I feel a bit like Dorothy looking over the Land of Oz. This isn't Kansas any-

more, Toto. And there's a man from the government come to see you and he's here to help. From this point, essentially all Internet and communications related mergers are subject to government approval in a much more active sense than they perhaps once were.

The problem is that mergers and acquisitions are a key component of Internet economics. Virtually all ISPs operate in the red with a furious buildout to accommodate next year's customers and gain market share. This is funded by a combination of cash flow and any investment money that can be drawn into it. One analyst put that number at over \$20 billion in investment capital during the first quarter of 1998. But it is all based on the theory that at some point, someone will buy you out, swap some stock, or otherwise make you well in the end. When Doug Humphrey, founder of DIGEX, was asked what ISPs really want, he responded: "A black helicopter - that's what's driving the Internet - they all want a black helicopter."

But more seriously, mergers and acquisitions often do make sense. Even relatively small ISPs can buyout a struggling ISP in a neighboring area and instantly expand their footprint and customer base - and often get the technical talent as well. Anytime there's a lunch with two communications companies present, there's a strong possibility that a "napkin merger" will be the result.

But the basic problem remains the same. It is odd that as late as the sum-

mer of 1998, we find that the key to having an open and competitive Internet on a global basis is that all networks must in fact interconnect. And I find it striking the number of long-time veterans involved with the development of the Internet who still don't seem to get this part. Basically, you can't own and control the whole Internet. It's like trying to choke a Jello snake to death in a pit of Wesson Oil. And if you could, you damn sure don't want to. That becomes a monopoly, and in the United States, we regulate those - heavily and very, very badly. In fact, I would go so far as to say that if someone walks up and tries to GIVE you total control of the Internet, run, don't walk, in the opposite direction as quickly as you can. Don't speak to them or otherwise engage them in any way and change the notes on your desk calendar to cover up the fact that you were ever in the building with them.

Meanwhile, I can only again urge the parties of the secret brotherhood of about 100 guys who actually run the Internet to get together and produce a rational peering and exchange policy to formalize private interconnect. The "new players" in the future are no longer teenagers from Atlanta with a cool idea for a backbone. Companies on the level of Qwest Communications, L3 Communications, Williams Telephone, and more are showing up at the table with huge war chests, and the old game of delaying peering agreements for a year to slow down the competition isn't going to fly anymore. We are about two quick lawsuits from getting to behold a peering and exchange solution devised and run by a man from the government who's here to help. And we're already at the point where every new development, merger, or acquisition has to be gauged and measured on how much lawyer time you have to pay for in dealing with regulators. It is imperative that we move peering and exchange into something that works technically, is globally scalable, and de-couples the concept of a competitive Internet from who has the largest size or market clout. An independent organization with control of exchange points that actually interconnect the Internet is the only solution I can devise. And it would be better for the Internet community to produce it than for the government to do so. Time is of the essence.

Jack Rickard  
Still Editor Rotundus



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## GRATEFUL FOR BUSINESS ADVICE

Jack:

Thanks so much for adding the "Marketing 101" section in **Boardwatch**.

I'm relatively new to this industry (just about on my 1st year anniversary). I'm running the operations part of Conterra Communications, Inc. (a local ISP for Columbia, SC), and it has become very hard to find decent info on the business side of ISPs. And, I'll have to admit that I use to pass your magazine straight on to my technical people. . . But this section caught my eye, and now I've been scrambling to find out what I've been missing the past year.

Thanks again. . . keep up the good work.

GRIZZ  
Aaron Griswold  
Business Manager  
Conterra Communications, Inc.

Aaron:

*Pleased you found it useful. The ISP world does remain technology driven, and we're a bit beyond apologizing for our tech articles. But we still have the best recipe column of ANY computer related magazine. And seriously, there are a lot of aspects to living in the ISP space beyond how to configure routers. Paul Stapleton has been doing a marvelous job with ISP valuations. Editor Bill McCarthy continues with his column on marriages and weddings in the industry. And next month we're adding a column by Dana Blankenhorn on electronic commerce sites that I think will break new ground and ultimately be of a lot of interest to ISPs. ISPs will either host or connect many of these commercial trading sites, and their success and the ISPs success, are to some degree intertwined. Contrary to popular myth, most e-commerce sites simply don't work*

# LETTERS TO THE EDITOR

Address correspondence to:  
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*at this point, and a few work extremely well. We think it will be fertile ground to examine why in some detail.*

*So we don't sit around performing self congratulation exercises very much. Boardwatch is a dynamic mirror of an almost violent industry. We've got a structure that allows us to add and delete columns to continually tune the mix. It's a bit of an experiment in publishing, but it always was.*

Jack Rickard

♦♦♦

## DENIAL OF SERVICE ATTACKS

Jack,

I am a systems administrator for a growing Internet provider. We started this business 3½ years ago with 20 modems and four servers. We have since grown to offering service to nearly 10,000 customers in eight counties.

I have been in the BBS and Internet business since the mid '80s and have followed your **Boardwatch Magazine** both as a subscriber and purchaser all these years.

I am taken back by the total irresponsibility of Mr. Wallace Wang in his column "Notes from the underground - Denial of Service Attacks" dated June 1998.

I can't believe one of my foundational sources for Internet reality would allow Mr. Wang to arm an army of Internet morons with the tools to try to take down my systems. I realize this is not a secret, but why publish it?

I work to maintain a secure network for our company. Unfortunately at times, with new technologies, there are security holes systems administrators are not aware of. Mr. Wang's column now

informs a larger public of a new trick to play during what might otherwise be a boring Internet session.

Perhaps Mr. Wang feels he has done me a service informing me I can now expect to be attacked by his readers.

Fortunately, we patched our systems months ago.

Free speech does not always mean speech is free. Mr. Wang's article will cost someone, somewhere, either time or lost services.

We should all work together for the protection of our industry, not open it to larger public abuse.

Thank you

John Hill

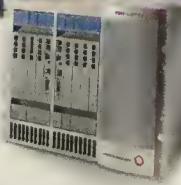
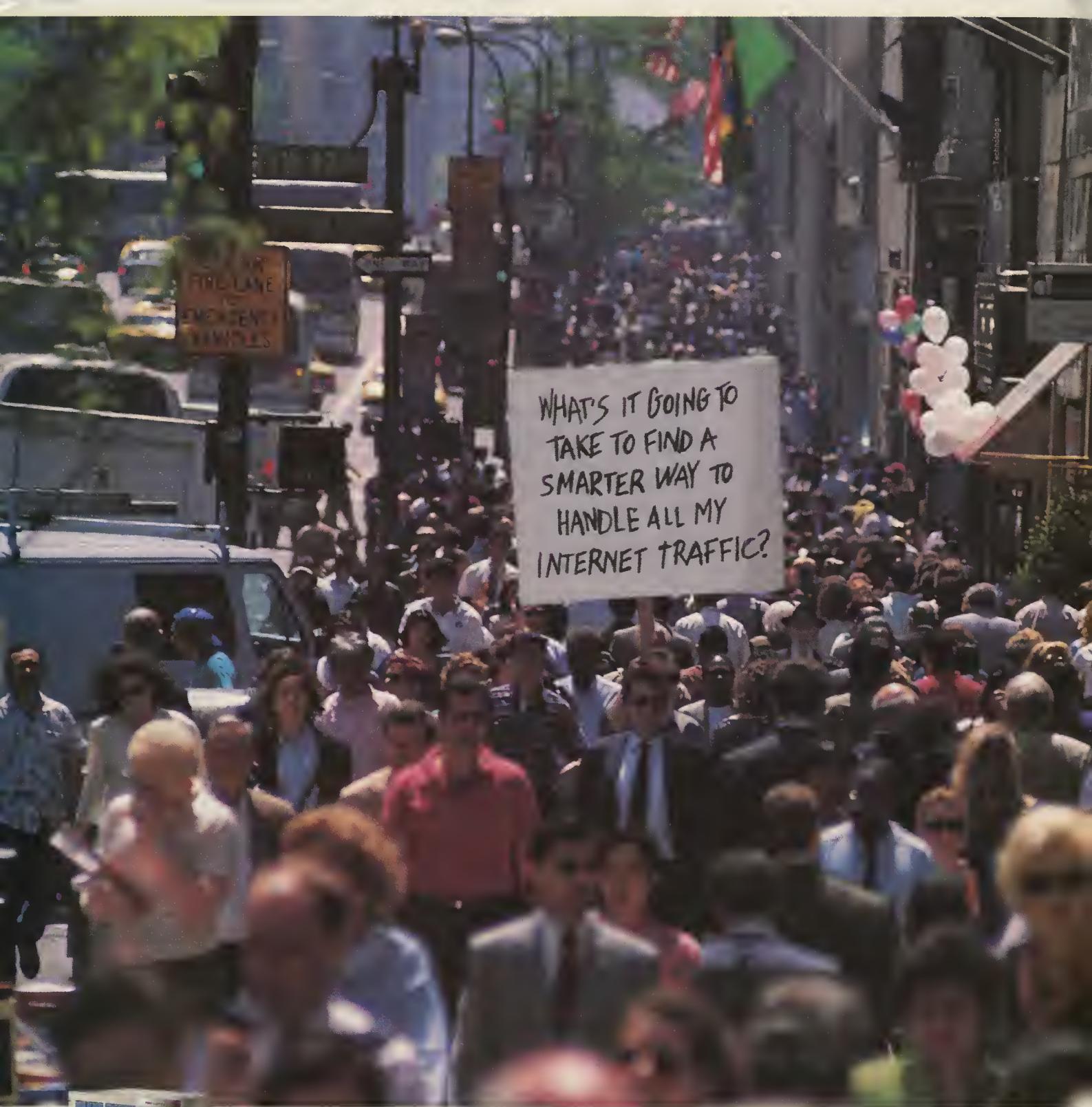
John:

*This one does get us in hot water periodically, but we have been quite consistent over the years. Getting it out in public invariably does more good than harm. You note that fortunately you patched your software to deal with Denial of Service attacks. But what? You don't want any other ISPs to do the same?*

*We've published lists of spam e-mail software, and I myself wrote an article nearly four years ago on how easy it was to spoof an e-mail message using the incestuous SMTP mail servers the Net was rife with. Today, it's emerged as quite a problem.*

*When we find em, we'll throw them up in the air for everyone to look at. It has nothing to do with encouraging abuse, and everything to do with encouraging wide information. On balance, we think that causes more good than harm.*

Jack Rickard



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## PAY E-MAIL

I'm responding to your response on e-mail micropayments in the April issue. The solution of paying to send e-mail sounds great but how do you get it started? You've already got the attention of most ISPs in the world with your ISP directory and ISPCONs, so why not set up some kind of interactive Web site/seminar to poll the ISPs on this idea. We could hash out the features we would want as ISPs and users, and for managing the micropayments. The only way to get rid of e-mail spam is to charge for messages sent. We know how important e-mail is and also that spam will only get worse.

You'll need someone to figure out exactly how to do e-mail payments (and what they'll be) and then get everybody behind it (actually maybe only 60-70 percent - if ISP's running this plan don't accept mail from non-participating ISPs, those ISP's will have to get inline or lose their customers). It'll be nearly impossible but what is the alternative?

Oh yeah, love the mag, keep up the good work!

Dean Brown  
Head Web Head  
Netsell Communications -  
<http://netsell.com>  
DAHB Music -  
<http://netsell.com/dahb-music>  
GTA Business Locator -  
<http://netsell.com/gta>

Dean:

*The concept of a pay e-mail system to provide safe haven from spam is actually gaining a little steam. I'm hearing from a lot of people on this topic. Many are ISPs and if any ISP takes a quick look at the volume of e-mail through their system, and visualizes a tiny fractional revenue stream from each message, it gets pretty exciting.*

*There are problems, none unsolvable, but problems nonetheless. Most of them have to do with the concept of if it works. It inherently points toward centralized control of electronic mail. Part of the success of the current e-mail system is its distributed nature. Having an authorization database that keeps track of who is participating and accounting for the portions of the 32 cents is non-trivial, and very difficult to scale. Doing authentication with existing e-mail programs can be tiresome for the end user.*

*I've been tempted to hack out a system myself to demonstrate this, but many many products started out as a quick hack to do a specific thing. Once it took off, everyone, including the original author, wound up living with what occurred on a snowy winter afternoon after three gins - way back when. I've seen this enough to be wary of it.*

*I'm not much of a group groper myself. I can't recall a single significant development along these lines that sprang from a bunch of ISPs or a bunch of anything else getting together to decide what it should look like. I've actually received quite a lot of input from Internet service providers as well as others. At this point, the end result looks like a hughish database on some significant hardware with a couple hundred customer service reps standing by. I'm not sure I want that in my living room. I'm casually looking for a suitable heavyweight partner that can build a scaleable system and handle success if it should happen to occur.*

*But ideas are 10 cents a pound around here, and I've been pretty open about how I think it should work. Anyone can jump in with no angst from me.*

Jack Rickard

♦♦♦

## OPEN COMMUNICATION

Dear Jack,

I am interested in finding out the "ISP" leaders that can offer the latest security concoctions.

All ISPs offer the basic password protection and maybe SSL, but who among them offers high tech security such as internet firewalls and backbone zippers (?), when data becomes so secure even the owners can't retrieve the data in any usable form.

Need to know because as soon as I learn what FLAVIS WAVEN is I want to protect it from being misunderstood.

If you are interested I have a list of great questions that you can ask ISPs to survey then to find out if they really offer security on the-net-backbone-mesh-zipper, whatever.

"Isn't it great to have perfect and fast communications with anyone, but how and when do we learn to understand?"

Gordon Lee Griffin

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## Introducing NeoPlanet by Bigfoot...

the browser-based portal service that turns Internet access into a user-friendly online service, branded entirely by you.

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## NeoPlanet. Your Online Service In A Box.

For more information on the NeoPlanet ISP Program, go to <http://www.neoplanet.com/boardwatch/>

NeoPlanet is a service mark of Bigfoot Partners, L.P.

Gordon:

THE primary editorial tenet at **Boardwatch Magazine** is "Let he with an ear to hear, hear." What this means is that in any industry, any endeavor, any topic, there will always be masses of bovine para-humans willing to chant the latest with little in the way of comprehension. They can be loud, and they can be incessant. And they don't bother us a bit. Of the millions in the herd, there are also several thousand great minds out there. They're smarter than I am, they have more energy, they are more knowledgeable on whatever we are trying to cover, and they drive the world. They are building a global network that will change life for unique individuals in the remotest section of Nepal. We write for them. We do the best we can, and we never write down to them or in any kind of condescending fashion. And those with an ear to hear, will hear.

I take some heat for this occasionally. For example, some of my answers to "Letters to the Editor" can come across as a bit sharp I'm told. The theory is, if they thought enough to write, it deserves an answer. And it will not be a pandering answer designed to suck up to readers, make them feel good, and thus motivate them to buy more magazines. It will be a response to what they wrote, with as true a reaction as I can muster.

And you're right on the mark in a wider sense. We can improve communications, even globally. But we can't raise the percentage of active human minds among the herd. We enable the feeble to the same degree as the brilliant. But the objective is to make sure ALL the brilliant intellects in the world have access - as by having access, they might also change the world in a way they could not in isolation.

In the process, there will always be the usual background roar of the bovine

masses in motion. We shouldn't let it distract us from the mission.

Jack Rickard

♦♦♦

## ANOTHER BASEMENT STARTUP

Hi Jack,

My name is Jaime So, one of your avid Boardwatchers for three years now, in fact I was so inspired by your columns that I made up my own contribution to the growth of ISPs and the Internet as a whole from my small basement here in the True North.

For two years now, I've been compiling listings of British Columbia's (Canada) ISPs at [www.aspac.com/www/jaime\\_so/bcisp.html](http://www.aspac.com/www/jaime_so/bcisp.html).

I also included a direct link to your **Boardwatch** home page and promoting ISP CON 98. You may want to take a look of it, spare two seconds of your precious time. :)

Anyways, Jack, a free copy of your latest ISP Directory zine would be great. :)

Jaime V. So  
MCSE, MCP+Internet  
6182 6th St  
Burnaby, BC  
CANADA, V5E 3S4

Jaime:

And so you shall have one.

Lists, and keepers of lists. It is tiring work and good work. If you feel alone and isolated in your basement doing this, I've been there. Persist.

Jack Rickard

♦♦♦

## V.90 UPGRADE

Jack,

The word of your cover article in the March issue of **Boardwatch** circulated widely. It was very informative.

Now that the V.90 standard has been resolved, an article assessing the likelihood that current x2 and Kflex modems will be able to fully accommodate the V.90 standard after a software upgrade would be helpful. There is a marketing blitz on 56K modems. They price from \$99 to \$230. Yet, consumers are unsure whether or not these will be fully upgradeable to V.90.

I guess the key question is "will a formerly x2 modem be able to speak to a formerly Kflex modem after both have received a V.90 software upgrade with the same efficiency as a production V.90 modem?"

Any insights would be helpful.

Steve

Tel: (212) 501-3867  
Fax: (212) 208-4535

Steve:

We are currently running tests for our dial-up call completion segment of the Directory. As of mid-June, we find V.90 virtually non-existent. 3Com / US Robotics has it out in their modems, and a few of their ISPs have deployed it. It is very good.

Of Zoom, Hayes, Motorola, and Supra, all have announced V.90 and we are currently unable to get even a DATE when a software upgrade for these modems will be available. The basic problem looks like there is, after all, insufficient memory to hold both the new V.90 code, and still have it backward compatible with K56flex. Bottom line is that we aren't actually testing V.90 because V.90, in any wide sense beyond a few USR Total Con-

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trol ISPs, simply does not exist. And the promised software upgrade to the Rockwell chip based modems would appear to be in grave trouble.

This is the status as of June 25. We'll keep you posted.

Jack Rickard

♦♦♦

## WANTS BOTH PAY MAIL AND FREE MAIL

Dear Jack,

I just picked up the April issue of *Boardwatch* (I promise to get a subscription soon, I didn't realize the newsstand cost you money), and I just wanted to toss in my two cents about your spam idea.

First, though, you've probably heard by now, that the state of Washington has passed a law prohibiting phony headers in e-mail, to try to curb spam. Since it can only apply to residents of Washington, enforceability seems problematic. (I found info about it at <http://email.miningco.com/library/nus/msub033098.htm>, but any search on 'Washington' and 'spam' should turn it up.)

Now, about your pay-mail proposal. If I were given access to both free-mail and pay-mail, here's how I would like to use them. I would have the pay-mail open for anybody who'd like to pay me to read their messages, and set up free-mail to only accept messages from a select list of people. (If somebody wants on my free-mail allow list, they can send me pay-mail and a very good reason to let them on it.) I'd continue using free-mail, because I like using e-mail differently than snail-mail. I don't want to spend 32 cents just to send a "Hey, you back from lunch yet?" to a friend. This may cause problems with phonied-up free-mail spam getting bounced all over the Net, but I doubt most users would be concerned with that, especially if they never have to see it.

And, of course, 32 cents is probably too high a cost for a single pay-mail, since legitimate direct marketers have trouble breaking even at bulk-mail rates. (Though the absence of printing costs may mitigate that.) The exact number is, of course, negotiable. Heck, maybe we can even set up pay-mail as an abstract currency, where each involved party gets a fraction of a credit that they can continue to use to subsidize their own e-mail,

and only cash out when pay-mail prices are sufficiently high. (We'd want to trade in pay-mail contracts on the currency exchanges, of course.) Just a thought.

In all, it seems like an excellent idea. (I keep getting these nightmare images of pointy-haired bosses forcing their employees to subscribe to junk-mail lists just to improve the bottom line, but you can't exactly plan technology around management idiots.) It would definitely end spam as we know it, without making the electronic world hostile to marketing by legitimate companies.

Has anybody volunteered to be the clearinghouse yet?

David Brandt

David:

*I actually envisioned the two e-mail systems operating quite in parallel forever, with individual users using either or both at whim.*

*You seem to indicate you would send mail for free, and accept mail for pay. I think you would also pay to send. Here's why.*

*Let's say you wanted to send a message to Rush Limbaugh to give him hell for those neckties he wears. Rush gets thousands of e-mail messages per day via free e-mail. He could move some of that to cash by simply setting up a pay mail account. And you would be more likely to get your message read by Rush, by sending it to his pay e-mail account, where he might get dozens per day, than to his junk free e-mail account, where he gets thousands. It establishes that all e-mail is NOT of equal importance - a kind of URGENT inbox where someone thought enough to spend 32 cents - still not enough to put off making your mortgage payment.*

*I don't know that you really want to send Rush a message. But I think you'll find instances where it would be very nice for a path through the noise. And admittedly, the 32 cents is a contrived number subject to change. Maybe \$5 per message would be even better. I send overnight packages all the time at \$9.95. Why? So they'll get through.*

*I've heard from a number of people interested in serving as the clearinghouse. We're looking at it.*

Jack Rickard

♦♦♦

## POOR SERVICE FROM NETCOM

It's been quite frustrating, not to mention debilitating, to have NETCOM as our ISP. I opened my account with them about two years ago and for the first year or so, I had no major complaints. Over the past year, however, the service has degraded and lately has taken a huge nose dive. In the past six months I haven't been able to dial into the Internet using a local, New York, phone number. I've had to call one of several long distance numbers, which of course I'm paying for. There simply was no answer on their end, and no message, no busy signal, nothing. When I did call a long distance number I was usually connected, but often wouldn't be able to send and/or receive e-mail, because their server was busy, at least that's what they said. I wrote them a letter detailing my experiences with a copy of my phone bill asking them for credit, several days ago.

When I've tried calling for support, a long distance toll-call, I've had to wait up to an hour before someone was available to take my call.

I finally decided that I'd had enough and have signed up with EarthLink, which seems OK so far. At least I can dial in and get my mail and get someone on the phone within 15 minutes. They did however, neglect to send me the installation CD even after I called and asked for one.

So much for service.

So today I tried to cancel my NETCOM account via the Web. It was no surprise that I couldn't because their server was too busy and wasn't accepting any more connections. I've tried several times over the course of the day to no avail. I think it may be that they just don't want to let me cancel and they're purposely denying those requests. Because of this I am forced to send a fax. That's good, an ISP which you have to send a fax to, because their infrastructure is screwed up. Might as well go back to the good old '80s.

Just thought I'd vent a little. Hope you don't mind. In fact I thought you might be interested in this sort of information, although come to think of it you're probably inundated.

Thanks for listening.

Sincerely,

Gilda Aronson

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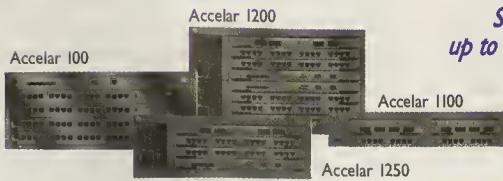
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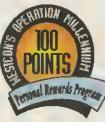
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Gilda:

*Sounds like you did the right thing - vote with your feet. This is precisely WHY a competitive Internet with a lot of consumer options is important. View it as the most sacred aspect to the online community, and guard it vigilantly and jealously.*

*But I commiserate with the frustration. Even changing your e-mail account is a major hassle. I think we should be looking at broadscale e-mail account portability allowing you to change providers without changing addresses.*

Jack Rickard

♦♦♦

## PROBLEMS WITH BELL ATLANTIC

Dear Mr. Rickard,

My name is Robert J. Fehn Sr. and I am President and CEO of Jersey Cape Information Systems Inc., a small Internet service provider and network integrator in Cape May County, New Jersey. I am writing you in the hope of enlisting your support in our on going fight against Bell Atlantic. I will keep this short since I have included the entire text of our complaint, and claim, with this letter. I have written to you in the past and wish to express my continuing support for **Boardwatch**. You are truly a light in the vast darkness of Internet knowledge.

Since going into business in 1995, we have had nothing but problems; poor service, lack of service and downright incompetence from the phone company. They have cost us over one million dollars in lost business and lost customers over the three year period from 1996 to present. From the original engineering of our facility here in Marmora to the total inability of Bell to maintain their own ancient, and overloaded, network they have cost us money, creditability and reputation. They have sold us services they could not deliver, they have damaged services they are currently providing, and they entered into direct competition with their own customers by providing dial-up Internet connetions.

Is it right that my company should be forced to pay top dollar retail for voice and data lines, purchased from our competitor? Is it right that they have access to all our records and we have no access to theirs? Is it right that when there is a wide area problem with their equipment, that affects our customers, that their representatives tell people the

problem can be fixed by switching from Jersey Cape's Internet service to Bell's? We see these actions as anti-competitive and downright underhanded. There is currently no other resource for us to purchase service from; we are stuck with Bell's continuing monopoly.

They have not upgraded, increased capacity, nor addressed the ever-growing needs of the public over the last five years. Now they announce a 1.5 billion-dollar project to do this as if they were the first to think of it. It's too little, too late. They have hurt us and every other small company trying to do business in their area. If you contracted for a service with any other company and it was provided as poorly as our phone service has been, would you pay them?

Well, with Bell, there is no choice. We tried that route but got our service disconnected. Poor as it is, it's the only game in town. We have also learned that we cannot obtain an injunction to prevent service interruption since the Public Utility Commission here in New Jersey will automatically have it reversed, Bell wins again. So we continue pumping dollars into the gaping maw of this dinosaur that failed to notice it was extinct. Such a waste of money that could be going to better service our customers.

Please feel free to publish the information we have sent you. If I can be of any further assistance, please do not hesitate to contact me.

PS: You may have to use e-mail, they have decided that the best way to fight us is to interrupt our service. I can't help but wonder how much better their service would be if they spent the money they pay James Earl Jones on upgrading their pitiful network instead?

Robert J. Fehn Sr.  
President & CEO  
Jersey Cape Information Systems Inc.  
[www.jerseycape.net](http://www.jerseycape.net)

Robert:

*No it isn't right. I would urge you to fight to see that it is made right. Believe it or not, there are those in the FCC and other areas that are sympathetic to your plight. But they need to hear from you. They lack data, and contact with ISPs, to support what they may know anecdotally to be true.*

*It's a battle, and it can be an ugly one. But I can assure you it is not a hopeless one for ISPs such as yourself. Ultimately, the existing telephone monopoly struc-*

*ture is over. And the future of telecommunications of all forms belongs to small, entrepreneurial companies such as yours. In the process of their dying, a lot of ugly things will happen along the way. Unfortunately, there is just no clean pretty way to move from 54 years of monopoly to a free market system.*

Jack Rickard

♦♦♦

## JACK IS SPOT ON

Dear Jack,

Your responses to your readers about SPAM are spot on. The problem is that e-mail is "prepaid" in a manner somewhat analogous to medical care. Any service for which demand exists is rationed by price or by time. By making e-mail free at the time it is sent, there is no limit to the demand other than time, one way or another. E-mail isn't free of costs, and most of these costs are buried in the subscription price for Internet access. The answer, of course, is to put a modest charge for sending e-mail into the "cloud". E-mail that doesn't get sent on the public carrier would be unaffected by this change. It would be better to do this via private fee for service means, with the charge covering clearinghouse costs. A nickel per message would suffice, IMO, charged at the time the message is sent. Having the FCC tack on taxes sucks royally, so the PTB need to get their acts together ASAP. I do anticipate some problems for small mailing list publishers, so some kind of private registrations with bulk discounts would be in order.

Thanks for your excellent mag.

Sincerely,  
Charles D. Quarles  
[cquarles@sumternet.com](mailto:cquarles@sumternet.com), aka the CapitalistPig from BBS days ca 1986.

Charles:

*Four years ago, I had virtually this same conversation with Robert Metcalfe, inventor of Ethernet. I took the side of the status quo free/flat rate electronic mail, and he essentially took the part that electronic mail should have some incremental cost.*

*At this point, I would have to acknowledge that I now believe he was quite correct on all points and I was wrong. The reason this is uncomfortable, is he's now applying the same reasoning to pricing of dial-up access to the Internet. I again find myself*



V O P m a i l

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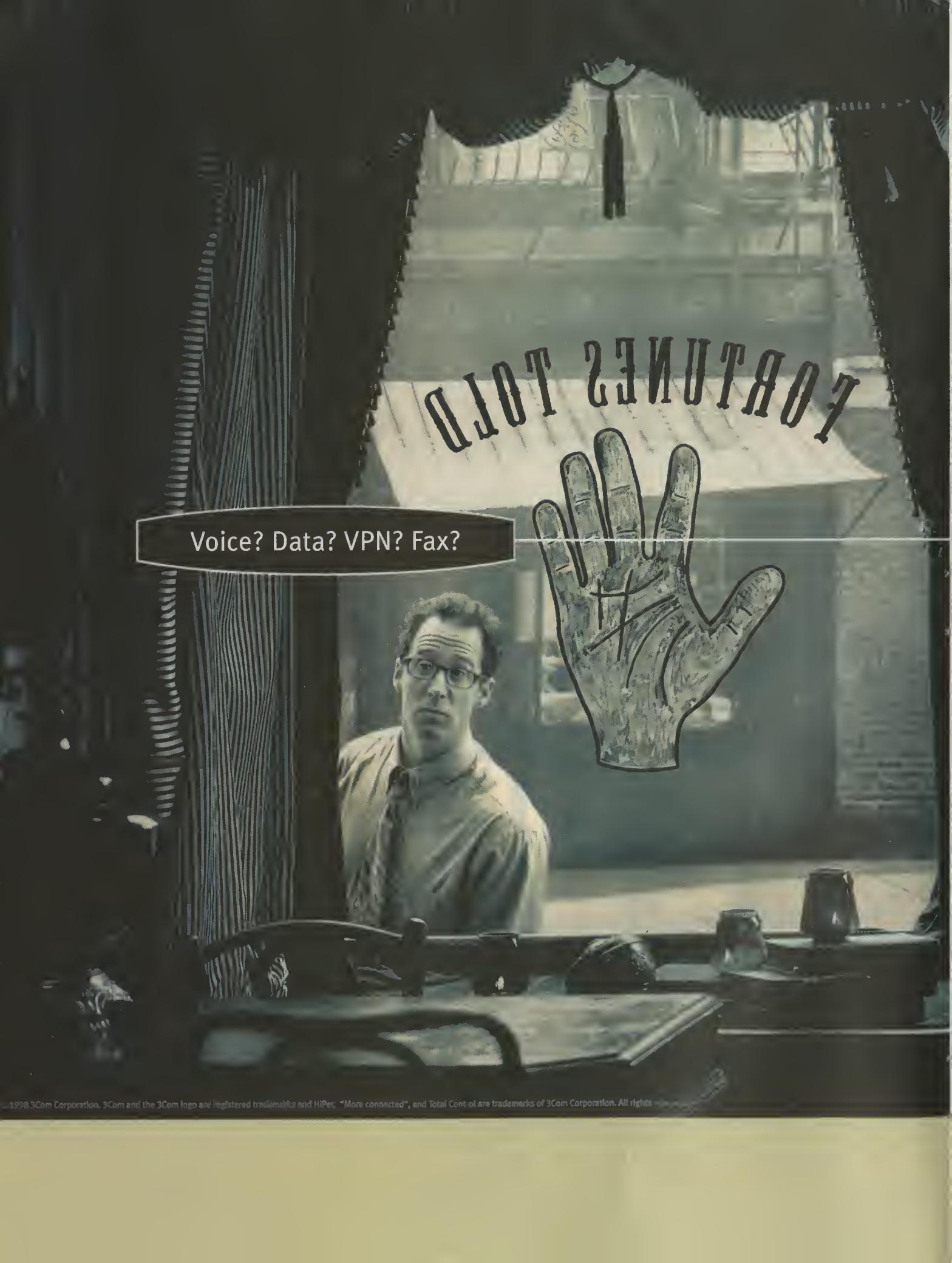
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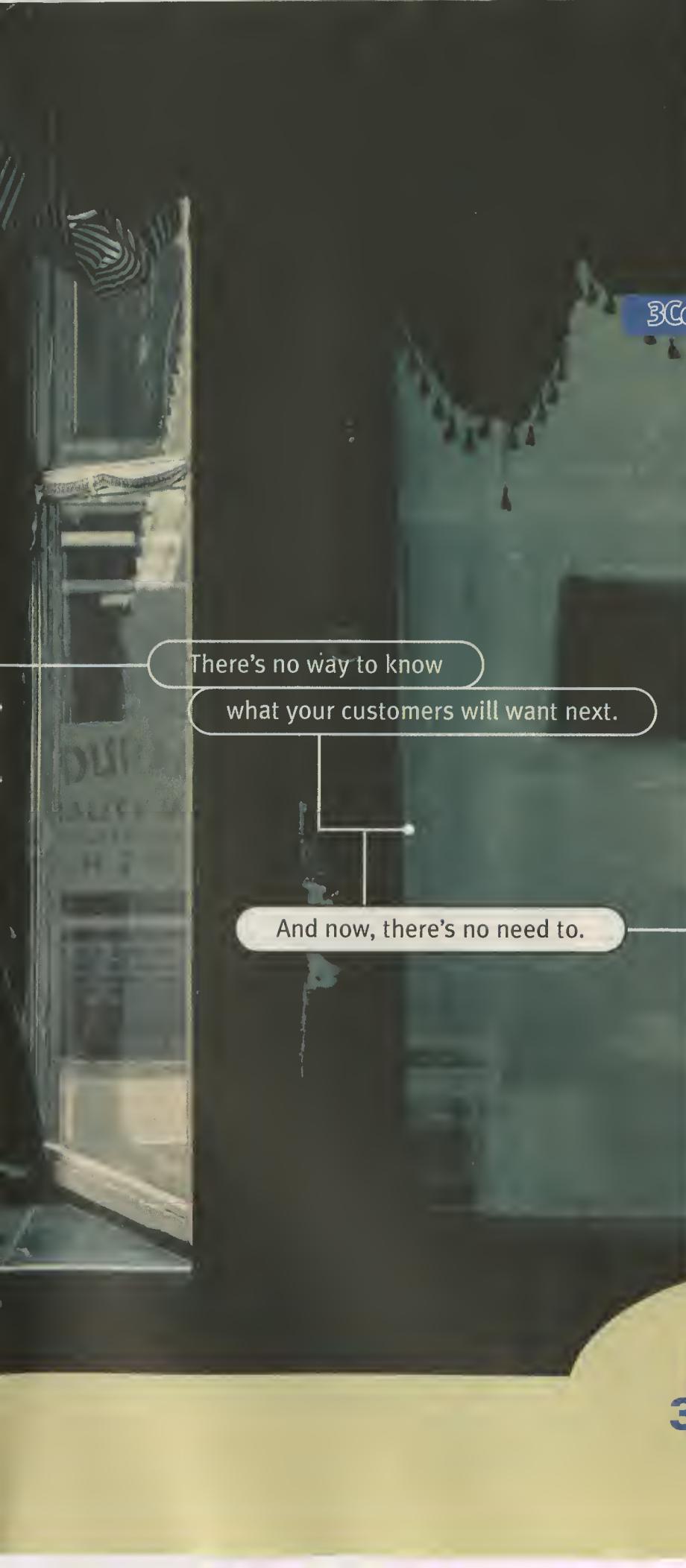
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A man with glasses and a striped shirt is looking up at a large hand reaching down from above. The background shows server racks in a dimly lit room. A speech bubble in the foreground contains the text: "Voice? Data? VPN? Fax?"

Voice? Data? VPN? Fax?

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favoring flat-rate access. And I dislike being wrong, and having to admit it publicly later. It's embarrassing, humiliating, and unnecessary. It would have been just as easy, and much more pleasant, to have been right in the first place.

Some days are better than others.

Jack Rickard

♦♦♦

## RECONSIDERED x2 vs. K56Flex

Dear Mr. Rickard,

I just wanted to thank you and **BoardWatch** for your March cover story, "The 56K Modem Battle." As one of those end users who lived through the Vfast V.34 mess and even US Robotics move to reinvent the Hayes AT command set when 1200 baud modems were the rage, I chose to wait for the V.90 standard before making a move to 56K.

Your article was therefore most timely and extremely interesting. It forced me to reconsider both my bias against US Robotics, and the purchase of a 56Flex modem. As a result, I spoke to a number of local ISPs in Toronto, many of whom related stories of inconsistent connections with Flex modems. They too, strongly suggested the purchase of x2/V.90 based modems over Flex.

Thank you for cutting through the press hype, and presenting some tangible information to end users.

Regards

Steven Hawkins  
[shawkins@user.rose.com](mailto:shawkins@user.rose.com)  
Toronto, Ontario

You're welcome Mr. Hawkins. I've been a bit uncomfortable at how alone we've been in the computer press on this story. But that's how it looks from here.

If it's any comfort, US Robotics was a front page story in our first March, 1987 issue. And we've been up and down with them ourselves over the years. Note that these companies grow, the people change, they get bought, they buy others, and the brand name is almost a non-sequitur umbrella of little meaning. Right now they're making a good modem - actually both the Sportster and the Courier line are really quite good.

We've changed our office location, changed our telco central office, changed the TYPE of central office switch, changed the long distance PAD, and the

testing we're doing now in June '98 looks very much like what we saw last January, reported in our March issue. The concept that our specific location was weighting the results against Rockwell chipset modems turns out to be simply untrue. It made sense, but it wasn't so. Meanwhile, we can't get software upgrades to V.90 for any of our Rockwell chipset modems.

Jack Rickard

♦♦♦

## NORTON WINDOWS COMMANDER

Hi Jack,

If you want a real file manager, hear me out. I have been reading and enjoying **Boardwatch** for a few years now. I really chuckled when I read Forrest Stroud's article about PowerDesk Utilities in the June 1998 issue (p. 52). I had the great pleasure of being introduced to one of the best file managers ever circa 1986: Norton Commander for DOS, from Peter Norton and company. It was the fastest, leanest, easiest powerful file manager I had ever seen, and I do lots of file pushing. My heart sank when I finally started to use Windows years ago and found nothing comparable to Norton for managing files, until I discovered the shareware Norton clone, Windows Commander (now available at [www.ghisler.com](http://www.ghisler.com)). This file manager is more than handy, it's downright easy, powerful, and fun to use. It's also been around for quite a while. It has multiple windows, a configurable one-click button bar for launching applications, advanced text or filename searching, lots and lots of configurable options and fonts, support for ZIPping and viewing, ability to compare directories, select files by filter, and even built-in FTP! What more could you want? Split and combine, encode/decode, show full directory trees at a glance, change file attributes? OK, it's yours with this program.

I don't know Ghisler and I don't work for him, but I love his product and I bet you will, too.

Sincerely,  
Michael Weiner  
[michael@weiner.org](mailto:michael@weiner.org)

Thanks for the tip Michael. I myself was a diehard Norton Commander user, to the point that I STILL have it on the desktop, and STILL drop to DOS and use it occasionally. In my estimation, it was THE top utility ever created for personal computers. Whenever things go wrong, I find myself STILL dropping to DOS. And if I'm on a machine without

Norton Commander, it irritates the holy living bejeezus out of me. I had always hoped they would upgrade the hex viewer to where it could also edit.

I'll have a look at Windows Commander.

Jack Rickard

♦♦♦

## THROWBACK TO BBS DAYS

Dear Sir:

I know your magazine isn't much into BBSs anymore but you seem one of the few places I may be able to find what I'm looking for.

RoboBoard 1.08 is my favorite BBS system of all time, Seth Hamilton's first graphical BBS, even before he really formed Hamilton Telegraphics. In the instruction manual for RoboBoard 1.08 he eludes to a kit with the technical information for the RBO100 protocol which drives the communication between the BBS and the Terminal. I've slowly been writing utilities and add-ons for the RoboBoard to make use of true Win32 capabilities. I'm almost ready to take the step of re-writing the RoboTerm terminal program but I do not want to use the hex editor, guess and check method of ripping apart the protocol. Since this was a very popular system, many people must have the information I'm looking for. All of my attempts to reach Seth have been in vain. I would really appreciate any help you may be able to give.

In Sum: I'm re-writing many parts of RoboBoard 1.08 to be compatible with the speed and operating systems in use today. I need to understand the communications protocol used to make further progress. I'm looking for: RBO100 toolkit.

Thank you

Sincerely,  
Tony Eischens  
612-739-6918  
[sysop@tgp.net](mailto:sysop@tgp.net)  
1122 Grospoint Ave N  
Oakdale, MN 55128

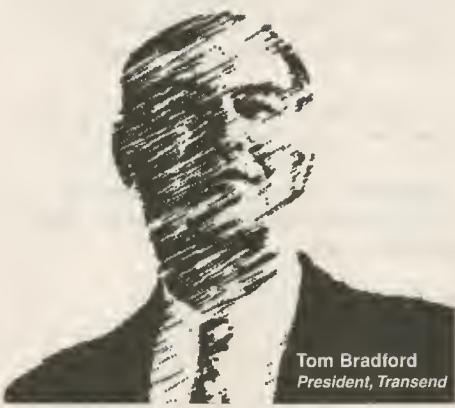
Tony:

About all I can do at this point is publish the letter and hope some knowledgeable RoboBoard enthusiasts contact you.

I wonder what ever happened to the guy still running a CPM version of TBBS on a Televideo?

Jack Rickard

♦♦♦



Tom Bradford  
President, Transend

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***While not leapfrogging technology,  
it's leapfrogging the hype***

**P**ersonally, I HATE TO WAIT. For a table at a restaurant, for a ticket to the movies, and for a page to download from the Internet. I especially hate waiting for the proverbial "leapfrogging technology" that is supposed to be faster and easier to use. Take ISDN for example. The technology is finally here, somewhere. But not in my neighborhood. My friends who could get it are waiting for prices to become even remotely affordable.

And what about 56k modems that never operate even close to that speed, in either direction, all because of those terribly unfair restrictions by the Telcos? Is there an innovative technology that is applicable right now?

## TA DA..! CHANNEL BONDING.

The answer is yes. Channel bonded modems, which combine the bandwidth of regular telephone lines to achieve more overall bandwidth, offer a cost-effective means to provide faster data access.

## SO WHY CHANNEL BONDING?

While channel bonding is not a glamorous, leapfrogging technology, it makes huge strides in throughput, all while using technology we're all already familiar

with, good old-fashioned telephone lines. By using existing telephone technology without any changes or new equipment, channel-bonded modems deliver faster point-to-point service, and Internet access without the high costs and headaches associated with ISDN lines and other new technologies. And for everything that's wrong with analog phone lines, they are plentiful, and cheap. Channel bonding can deliver performance in excess of 100K or even 200K.

## HOW DOES IT WORK?

Channel-bonded modems combine multiple streams of data into a single session by using SACS, a protocol designed for faster point-to-point connections and/or Multi-link PPP (MLPPP), a software standard that connects multiple modem calls across a remote access server.

Channel-bonded modems are the perfect answer for companies that don't want to wait for high-speed access to the Internet. And they are also likely to find a secure niche for high-speed telecommuting and remote office access, particularly in areas where the telecommunications infrastructure doesn't support digital technologies.

## WHITHER BBS?

Jack

I have been meaning to write to you for years and never really got the steam up. Been a subscriber of the **Boardwatch Magazine** since it was deeply rooted in the BBS scene.

Have you an opinion as to whether the local BBS will indeed die off? Is there any value in keeping them going, hoping that someone will remember the good ol' days, where the local community lived and breathed?

I have been running my BBS (FONIX Info Systems) since 1984. I am an ISP these days but still run the BBS as a free service for our ISP customers, as well as for an international bunch of diehards who still call very regularly for those ILink, RIME and FidoNET packets.

With the International BBS now much easier to get to, but with an increasingly Internet-besotted user base, it's much more difficult to tell 'em that there is no SPAM on the local BBS, there are hundreds of thousands of files, some as old as the hills, and a real community spirit, just waiting for them to call in.

My question to you is, would you be interested in running an article on CONTENT PROVIDERS, with a leaning toward BBSs, mail networks etc.?

I look forward to a reply, if not in your great magazine, by e-mail.

Best regards  
Chris Kenward  
SysOp - FONIX Interactive BBS  
[www.fonix.org](http://www.fonix.org) or Telnet to  
[bbs.fonix.org](http://bbs.fonix.org)

Chris:

*In my opinion, the BBSs never died at all and never will. They got new software, new connectivity, some new terminology, and they're on the network now. The people who drove BBSs now drive the Internet. That's how I know what happened. The line of demarcation between the two is forever clearer in almost everyone's mind than it can ever be in mine. Each spring, new software.*

*There are a few diehards who for whatever reason cling to last year's software and techniques. Direct dial is much higher performance than the IP network, and there are still applications that use it, and still active BBS dial-up systems in existence.*

*But they're not news, and I don't see them becoming news in the future.*

Jack Rickard

♦♦♦

## DSL HAS ARRIVED

Hello Jack,

Well DSL has arrived.

On May 27th PacBell (local telco) announced they would be releasing DSL in multiple cities. I already knew this - what's different is that they actually took an order from me and set an installation date for July.

The most exciting part about this is that it's faster access at affordable prices - which means the Net is really going to change.

Voice, video, faster web site access - etc.

From the information I have, DSL loop charges will be flat rate for PacBell. Although I heard GTE (which is the telco next door) will charge usage - which I think is just plain dumb - they've missed an entire market of Internet users that need dedicated 24/7 access.

The Pacbell rate is reasonable for the loops at \$60 for 384k down and 128k up, \$90 for 384/384 and \$189 for 1.5/384. Installation is \$610 for the works, includes the hardware and inside wiring. If I just have the outside wiring done and get my own hardware I'm looking at \$125 - which by the way is what I'll probably do.

So tell your advertisers one of my next hardware purchases in two months will be a splitterless DSL unit - and I'd be very interested in reading more about what's available to me and seeing ads regarding DSL technology.

Internet access will depend on what level of service is chosen - for consumers PacBell is charging \$30; for businesses with multiple IP's, I've not gotten the rates nailed yet but we're looking at roughly \$99 - \$350 depending on the speed and I can pick from a few upstream ISPs, including PacBell.

With the DSL distance limitations I'm sure 56k will be around for a while but I would guess the telcos will put up repeaters to handle longer distances after the normal DSL saturation begins to thin out. Plus I've heard rumblings of a few CLECs opening up around Los An-

geles - I know UUNET has been offering DSL in my area for a while - but the price was just under most upstream ISPs T-1 rates and I think it's absurd for UUNET to take a great technology like DSL and try to ramp-up the price.

This is a great advancement for the Internet - we're moving into the next phase.

If you like I'll keep you updated on my DSL ventures - it doesn't officially begin until late July.

Best Regards,  
Brett

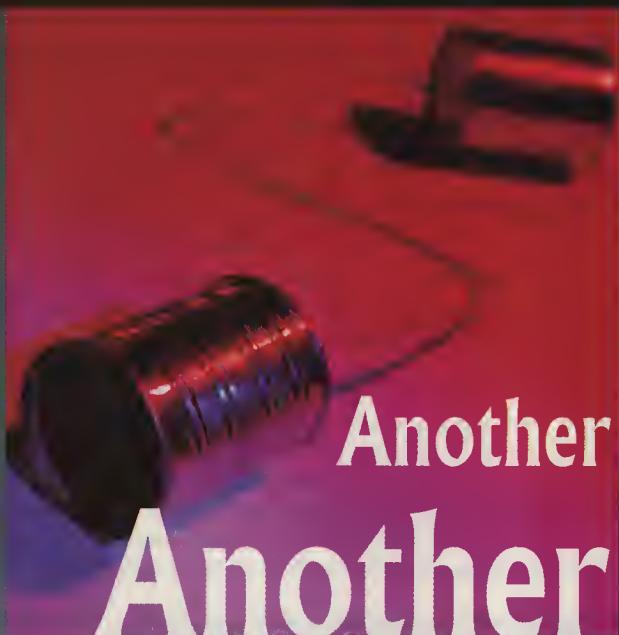
Brett:

*There are some curious mathematics concerning connectivity that are important to understand, particularly for ISPs and phone companies. If I take 100,000 people and connect them to me at 384K, what specifically do I connect them TO and at what bandwidth that they might "access the Internet" at 384K. I would be extremely interested in hearing a followup from you about August of this year, indicating your true experience in comparing that 384K at \$60 to your current mid-forties at \$20.*

And I'll leave it at that for now.

Jack Rickard

♦♦♦



# Another Another

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Week...

# CHANGE



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# Telebits



## AT&T TO BUY TCI

In an effort to increase their Internet presence, communications giant AT&T will merge with the country's second largest cable provider, Tele-Communications Inc. (TCI), in a \$48 billion deal.

AT&T will combine its current consumer, long distance, wireless and Internet services units with TCI's cable, telecommunications and high-speed Internet businesses. A new subsidiary, AT&T Consumer Services, will offer local, long distance, wireless and international communications, cable television, dial-up and high-speed Internet access services.

The agreement gives AT&T direct Internet access to homes through coaxial cable connections, completing the so-called "last mile" of connectivity. AT&T has not connected directly to homes for any local access since the government-mandated breakup of its monopoly in the early '80s. These home services were instead provided by the Baby Bells, CLECs, ISPs - and after the Telecommunications Act of 1996, cable companies.

With the merger, AT&T said its new company will own and operate the nation's most extensive, broadband local network platform. After the merger, AT&T says it will call for its new division to upgrade its cable infrastructure to include digital telephony, data services, and digital video services by the end of 1999.

The new holding will integrate all of the cable television systems AT&T acquires in the merger with TCI, as well as AT&T's fixed wireless technology and related spectrum rights covering more than 90 percent of the nation. When the merger transaction is finalized, the company said it will entirely own AT&T Consumer Services, while its affiliated cable systems will cover an estimated 33 million homes.

Under the terms of the agreements, AT&T will issue 0.7757 shares of AT&T common stock for each share of TCI Group Series A stock and 0.8533 shares of AT&T for each share of TCI Group B stock.

For its part, TCI is repositioning its holdings, consolidating its programming arm, Liberty Media Group, and its technologies investment branch, TCI Ventures Group, into a single company. The new company will be called Liberty Media Group. Before the closing with AT&T, Liberty's investment in @Home Corp., the National Digital Television Center and its ownership of Western Tele-Communications, Inc. will be sold to the TCI Group for roughly \$2.5 billion in cash.

## BROADSPAN UPGRADES TO CLEC

The Missouri Public Service Commission has approved BroadSpan Communications's application to become a Competitive Local Exchange Carrier (CLEC). Certification allows Broad-

Span to offer businesses and consumers a range of competitively-priced communication packages, including local and long distance telephone, advanced calling features, dedicated access, private lines, and high-speed data transferal.



In 1996 Congress passed the Telecommunications Act, creating a process to allow state Public Service Commissions to open up local phone service to competition and end the monopoly enjoyed by local phone companies such as Southwestern Bell, the Baby Bell in BroadSpan's target market. "We are very pleased," said Blake Ashby, BroadSpan's president, "that

the Missouri PSC is doing its part to encourage lower prices and the rapid deployment of new communications technologies for the people of Missouri."

In 1995, Darrell Gentry and some college buddies decided to create a free gaming server for the St. Louis area. Eventually, Gentry widened his business scope from retail gaming into the broadband delivery of integrated services (voice, video and data) through xDSL technology. This became the core of a new business christened BroadSpan Communications, Inc. in the fall of 1997. BroadSpan can be reached at: ([www.broadspan.com](http://www.broadspan.com)).

## CAYMAN INTRODUCES NEW ROUTER, PARTNERS WITH NOKIA

Cayman Systems rolled out its 2E500H router in June, giving Internet service providers (ISPs) a new tool to solve network and Internet connectivity problems. Cayman claims the 2E500H requires no configuration, working with a plug-and-play setup. The dual Ethernet and Internet access router comes with an integrated eight-port Hub and gives ISPs a way to set up local area networks (LANs) through a single high-speed device like a digital subscriber line (DSL) or a cable modem with Ethernet connections.

With a price tag of \$1,085, the new router integrates Internet protocol capabilities, two Ethernet ports and the eight-port Hub in one package. One Ethernet port supports PCs and MACs on the LAN, the other Ethernet port plugs directly into the high-speed modem. The 2E500H uses version 4.2 of Cayman System's network operating software with Swift-IP. Swift-IP now affords plug & play setup and can configure small offices using Cayman's series of routers: the HDSL1000, HDSL1001, ADSL2000, SDSL1400, LR700-H and 2E. Swift-IP integrates bridging, simple network management, network address translation and flexible host configuration to allow multiple users to connect to the Internet using a single IP address.

Cayman says its 2E500H router enables small and home office customers to finagle a single high-bandwidth Internet connection into a high-speed LAN. According to Cayman, service providers can use the product with cable, DSL or other high-speed modems with Ethernet interfaces, enabling customers to better utilize high-bandwidth connections. The Cayman 2E500H connects to the modem and allows an entire LAN to share a high-speed connection yet still appears to the network operator as a single device requiring only a single IP address.

Alternately, the Cayman 2E500H can be deployed to aggregate traffic from unassociated workgroups through an Ethernet switch. For example, a service provider could wire a multi-ten-

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ant office building with private Ethernet drops and a Cayman 2E500H for each tenant. Cayman says the tenants get instant Internet configuration and access, and the service provider ends up with low cost aggregation and simplified management.

Cayman Systems also recently entered into a partnership with Finnish telco Nokia. The partnership includes Nokia's agreement to license Cayman's no-configuration DSL customer premise equipment (CPE) and software technology worldwide. Later this year, Nokia will include Cayman technology in its Eksos M ADSL CPEs.

The Nokia fixed-access system was developed for operators building either pure broadband or combined narrowband-broadband services. Cayman's CPE software is an important component in Nokia's comprehensive service.

Headquartered in Finland, Nokia supplies mobile phones, mobile and fixed communications networks, data transferal, multimedia terminals and computer monitors. Cayman Systems is an equipment provider catering to service providers that sell to small and home office markets. Cayman works with cable companies, CLECs, ISPs, ILECs and RBOCs to help them deliver Ethernet-to-Internet digital subscriber lines and broadband services to small office customers. Founded in 1987, Cayman Systems is a privately-held company based in Stoneham, Massachusetts.

#### PLURIS UPS BANDWIDTH WITH PROTOTYPE ROUTERS

Pluris, Inc. has developed a prototype router to support higher port densities. Pluris (<http://www.pluris.com/>) claims its Terabit Network Router (TNR) is the only fully-integrated system designed to combine thousands of high-speed interfaces for a balanced switch-to-port ratio. The TNR will support port densities of up to 2,048 line cards.

The router can handle credit-card point of service, ATM, and Frame Relay at bandwidths of up to OC-192.

Pluris will market the TNR to the Baby Bells, ISPs, foreign telcos and other network service operators building large public and private networks. The prototype works as the basis for upcoming Pluris products, taking advantage of the full fiber capacity offered by the Wavelength Division Multiplexer, a next generation transmission device. This will allow service providers to support up to 1.25 Terabits over a single fiber.

Pluris says its Terabit Network Systems (TNS) architecture eliminates unnecessary levels of complexity associated with cumbersome LAN cluster designs. The company claims its single-system design will offer performance and measurement capabilities that reflect the actual capacity of the routed backbone. The Pluris TNR will support up to 256 independent virtual routers to allow the implementation of multiple, secure virtual private networks. Supported routing protocols include BGP4, OSPF, ISIS, RIP, and MPLS.

The architecture incorporates intelligent packet classifiers, traffic-shaping algorithms, weighted fair queueing, and distributed buffering. Multicast support includes multiple multicast servers, hardware multicasts, and protocols like IGMP, PIM and DVMRP. Pluris says it designed the TNS architecture to achieve terabit-level aggregate routing capacity. TNS distributes the path of packets between a large number of routing engines con-

nected through a distributed, linearly scaleable switch fabric across a multi-shelved, multi-racked integrated system. The linearly scaleable switch fabric and the massively parallel routing approach are the core elements of the Terabit Network.

#### CRYPTOCARD BUNDLES SECURITY PROGRAM INTO CISCO SOFTWARE



With remote access to LANs rising in popularity, LAN managers are scrambling to secure their Internet on-ramps from unwelcome outsiders. These new security pressures are felt acutely by ISPs, networked corporations and governments alike. Enter CRYPTOCard ([www.crypto.com](http://www.crypto.com)), an Ottawa-based security firm that's attempting to standardize its security products throughout the server and security vendor industries.

CRYPTOCard has teamed with Cisco Systems to help administrators secure networks run with Windows NT. The two companies have embedded CRYPTOAdmin, CRYPTOCard's authentication and token card management server, within CiscoSecure Access Control (ACS) 2.1 for Windows NT. The integration gives Cisco customers a one-time password program for centralized access control, without the usual requirements of purchasing and maintaining expensive authentication server software and standardizing on a third-party vendor's proprietary authentication scheme.

Many of today's enterprises are standardized on Windows NT and use static passwords to log on — at least inside the firewall. With the proliferation of telecommuting through the Internet, many of these organizations use token card technology to ensure that swiped passwords cannot be reused.

The CRYPTOCard token card server works with a variety of Cisco-compatible programs. For the Solaris Unix platform, versions 2.0 and higher, the CRYPTOCard server is included with CiscoSecure. For the Windows NT platform, version 2.0, the customer must first install a CRYPTOCard server to get the compatible CiscoSecure to work. For the upcoming Windows NT 2.1 platform, the CRYPTOCard server will be included with the compatible version of CiscoSecure. All three versions require some configuration.

CRYPTOCard tokens range from \$20-\$50 for soft tokens and \$40-\$70 for hard tokens, based on installation size.

#### ADDONICS UNVEILS ETHERNET LINE-SHARING DEVICE



Addonics Technologies ([www.addonics.com](http://www.addonics.com)) has unveiled an Internet sharing device for Ethernet networks, allowing multiple users to simultaneously connect to the Internet over one phone line. The device requires only one external modem and one Internet account.

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Priced at \$199, Addonics claims its new WebShuttle eliminates the need and costs of providing a dedicated phone line, modem and separate ISP account for each computer. Addonics says a single Web-Shuttle can support up to 50 users and will connect to any 10Base-T (UTP) or 10Base-2 (BNC) Ethernet network. The device provides Internet access for the entire network —using one ISP account through a modem or ISDN terminal adapter — with no loss of connection speed. Operating system support includes: Windows 3.1, Windows 95 and Windows 98. WebShuttle is also compatible with Mac OS and Solaris when they are connected to an Ethernet network.

Addonics is a member of the multibillion dollar ACER Group. Addonics designs, manufactures and markets a broad line of external and portable products that connect to desktops, notebooks or personal computers through the printer port and other interfaces (CD-ROM drives, optical storage devices and external hard drives).

## AOPEN AMERICA DELIVERS PCI-BASED MODEM PICTURE

AOpen America ([www.aopen.com.tw/english.htm](http://www.aopen.com.tw/english.htm)) has released its new modem, the FM56-H, designed with peripheral component interconnects (PCI). Created for use with a high speed PCI bus, AOpen's new internal modem works with the new V.90 standard and Rockwell K56flex technology. The FM56-H also sports fax and voice capabilities. AOpen says its new modem offers better performance and works with the latest PC standards set by Microsoft and Intel.



AOpen claims the FM56-H PCI Modem should free up conflicted resources delivered over Industry Standard Architecture and avoid Universal Asynchronous Receiver/ Transmitter (UART) bottlenecks. The PCI bus requires no configuration. AOpen says its PCI bus will pave the way for the next generation of high-end graphics, networking and multimedia applications.

AOpen claims its high-speed modem can efficiently download bandwidth-intensive games, music and document files over a regular analog telephone line. Compatible with Windows 98, the modem product includes a telephone answering machine, voice mail operations, built-in caller ID, and distinctive ring detection. Located in San Jose, California, AOpen America is the component manufacturer of the ACER Group, the world's third largest brand-name computer company.

## COMPAQ MARKETS NEW MODEMS, PRESARIO AS NET-FRIENDLY

Compaq Computer Corp. aims to get more of its PC customers online. With much midsummer PR fanfare, the company released its new line of Presario Internet PCs. The new computers feature a keyboard configured to send e-mail and search the Web, bundled Internet media brands and a new cable modem-ready 10 Mbps Ethernet port.

Assuming the role of an ISP, Compaq powers its Internet access program with the GTE Internetworking backbone. Offering a

\$100 rebate, the PC maker is enticing Presario purchasers to sign up for a 50-hour free trial of this new Internet service.

The new Presario also sports an America Online icon on the desktop, part of a multi-year agreement with AOL. AOL will pay Compaq based on how often Presario owners use the service, helping Compaq reach its stated goal of \$1 billion in annual revenues from ISPs and online services.

Compaq also recently launched two new modems, touted as the first industry-standard digital modems that work with private branch exchange systems. Dubbed the Corporate Communicator, Compaq says its new modem enables network managers to increase security by controlling a user's inbound and outbound data traffic. The Communicator is a 33.6/56Kflex modem that combines voice and fax capabilities. Along with the Communicator, Compaq released its new Microcom 550 modem. The Microcom card combines a 56Kflex modem and a 10/100 Ethernet PC port. It can be upgraded to the V.90 standard at no cost.

For its part, the new Presario comes with V.90 modems designed for faster downloads from K56flex or V.90-compliant digital sources; second-generation DVD-ROM drives that run at maximum transfer rates of up to 2.76 Mbps; a 100 MHz system bus, upped from the previous line's 66 MHz system bus; and a 24x Max CD-ROM drive. Compaq says the new Presario's data transfer rates may vary from 1.5 to 36 Mbps.

## LOGIC COMBINES IP DATA SERVICES IN DVB STREAM

Logic Innovations ([www.logici.com](http://www.logici.com)) has unveiled a new delivery system that combines numerous IP data streams through digital video broadcasts (DVBs).

The IP Encapsulator Data Gateway (IPEDG) delivers IP data directly to a satellite, cable, terrestrial or wireless broadcast modulator. A PC client can access the data at a downstream throughput speed of up to 45 Mbps. Residing on the LAN at the satellite hub or headend, IPEDG distributes software applications, data files and multimedia content. The IPEDG also injects data from custom applications through a Win32 Winsock 2.0 automatic program load.

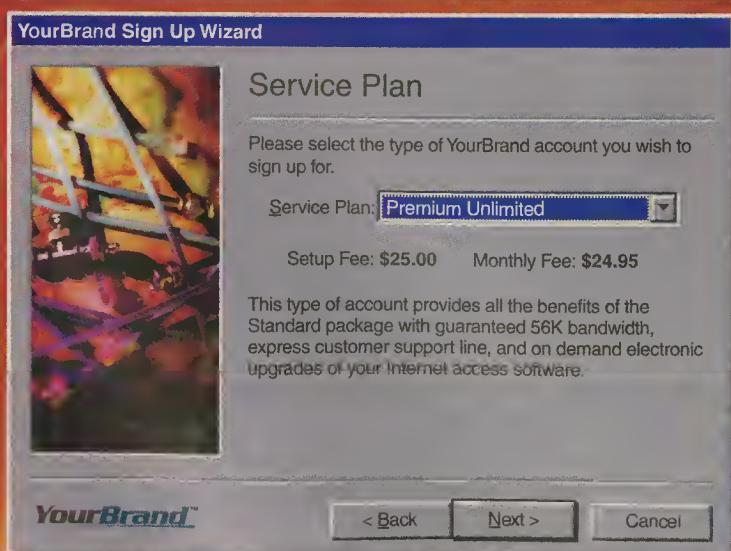
"With a long list of possible applications for this type of technology, we knew...developing flexible architecture systems for DVB and MPEG was going to be key," said Maurice Nieman, vice president of marketing for Logic Innovations. "Our IPEDG supports the most direct connections to industry-standard modulators and encoders.... As a result, users receive a system that is united to work with a vast array of applications," said Nieman.

Logic says the applications of the IPEDG range beyond traditional uses for DVBs — long distance learning, on-line gaming, multimedia delivery, corporate private networks, IP multicast subscription services, high speed Internet or Intranet access and remote firmware updates through a receiver. According to Logic, broadcast engineers will also benefit, gaining faster access to IP or interactive data, supporting a more economical use of bandwidth, reducing the amount of equipment needed for a broadcast transmission and complying with DVB specifications.

Logic claims its IPEDG can intelligently manage bandwidth so simultaneous users can access the system. Multiple service

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levels are also available, along with other controls to help engineers manage data more efficiently. IPEDG system performance and statistics are displayed and controlled directly by the IPEDG graphical user interface. Users can monitor or proactively manage the IPEDG with the SNMP MIP II remote configuration, as well.

Logic Innovations designs and tests high-speed digital transmission equipment. The open-platform technology used in IPEDG is part of a family of products that includes the Data Stream Transport System (DSTS) and the Extensible MPEG Editor (EME). The DSTS is employed in multimedia labs to support the development of set-top box components and systems, and installed in multi-station production test fixtures to simulate digital headend systems. Logic Innovations' EME creates custom MPEG transport streams to test specific features of a set-top box or to perform limit tests. Founded in 1986, Logic Innovations is headquartered in San Diego, California.

## **MICROFRAME RELEASES UNICENTER COMPATIBLE SOFTWARE**

Working with the Computer Associates and the Development Partner Program, MicroFrame Inc. has released a new product compatible with another company's programs. MicroFrame has new software for single network management protocols (SNMPs) that allows Sentinel 2000 products to communicate with CA Unicenter software. MicroFrame's new SNMPView software represents the initial integration with Unicenter TNG, which allows Unicenter's TNG Enterprise Management System to handle PBX, Voicemail, and other non-SNMP compliant devices and network elements.

Sentinel 2000 products are designed to monitor network equipment, gather and report information essential to the network's well being. Notification of alarms, status changes and other conditions are performed through pager, file transfer protocols, Telnet, dial-up and SNMP traps.

"Our Sentinels provide more than compatibility with legacy devices," said Microframe CEO Stephen Gray. "They also provide a redundant, acknowledged, out-of-band method for delivery of critical alarms when the network is unavailable; as well as a secured method for providing a virtual presence at the console ports of network elements using standard Web browsers."

MicroFrame develops and manufactures hardware and software for secured Internet, intranet and remote network management systems for voice, video and data communications. Based in Edison, New York, MicroFrame has installed systems worldwide.

## **ARCHITEL OFFERS ORACLE-COMPATIBLE TELCO PROGRAMS**

Architel Systems Corp. ([www.architel.com](http://www.architel.com)) announced in June that the latest generation of its telco software now supports the Oracle8, the latest release of Oracle's database. ASAP is used for the provisioning of services, ranging from basic telephony to enhanced services in the local exchange, long distance, cable and wireless markets.

Architel says its Automatic Service Activation Program (ASAP) works with a variety of operation support systems and telco carriers, from start-up CLECs to large incumbent Baby Bells and regional PTTs. Each member of the ASAP product family is based



on the fourth generation ASAP service activation platform: ASAP Wireline, ASAP Wireless, ASAP Data, and ASAP Long Distance. Architel calls its products open, scaleable and designed to automatically handle small to very large volumes of telecommunications service requests. ASAP is used for the provisioning of services, ranging from basic telephony to enhanced services in the local exchange, long distance, cable and wireless markets.

"The powerful combination of Oracle8 and ASAP's multi-threaded, multi-process distributed architecture, will provide carriers with a highly scaleable, manageable and operationally consistent service," said Architel President and CEO Tony van Marken.

As part of incorporating support for Oracle8 with ASAP products already on the market, Architel's engineering group worked closely with Oracle. Architel Systems Corporation develops, markets and supports advanced Operation Support Systems to the global telecommunications industry. Architel operates from offices in Canada, United States and the U.K., with a head office located in Toronto, Ontario.

## **ARBOR SELLING OLAP SOFTWARE**

Arbor Software ([www.arborsoft.com](http://www.arborsoft.com)) is selling a new plug-in package for its online analytical processing (OLAP) software. Arbor claims the new software will better link with other platforms so users can easily build online data warehouses.

Billed as a tool optimized for management, analysis and planning applications, the Arbor Integration Server works with Arbor's Essbase OLAP program. Integration Server supports multi-user read-write access, large-scale data capacity, analytical calculations and other OLAP queries.

Integration Server allows a user to deliver OLAP applications directly from operational systems or from within a data warehouse. Inside the warehouse, Arbor Essbase delivers shared access and analysis through standard desktop tools such as spreadsheets, report writers, query tools and Web browsers. Analytical applications implemented with Arbor Essbase range from sales, marketing and profitability analysis, to EIS and reporting systems for financial consolidation, budgeting, planning and forecasting applications.

## **AIRONET INTRODUCES ETSI-COMPLIANT WIRELESS BRIDGES**

Aironet Wireless Communication ([www.aironet.com](http://www.aironet.com)) has introduced a series of bridge solutions that wirelessly link

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networks together - typically in different buildings - at data rates up to 2 Mbps. The new BRE100 Series is designed to provide short, medium, and long-range building-to-building LAN connections in countries regulated by the European Telecommunication Standards Institute (ETSI).

Offering wireless bridge solutions for 1-kilometer (km), 5-km, and 10-km distances, the Aironet BRE100 Series costs \$3,050 (U.S.). Aironet says the BRE100 Series can support wireless links up to 10 km at 2 Mbps when antenna, site elevation and line-of-sight considerations are optimal. Greater distances can be achieved when Aironet wireless bridges operate at the lower data rate of 1 Mbps.

"A lot of people have announced their intentions to develop real-time solutions, which is a hot topic in Internet telephony," said Omey Nandyal, chief technology officer for Open Port. "But, in the pursuit of real time, they tend to underestimate the effect of latency-related issues. We think we have a solution that offers the best of both worlds — real time, with greater reliability."

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The Aironet BRE100 Series can be purchased as a complete point-to-point bridge system - including antennas, cables and mounting hardware - or components can be purchased separately with optional omni-directional antennas for point-to-multi-point bridge applications. The Aironet BRE100 Series uses Direct Sequence Spread Spectrum (DSSS) technology in the 2.4 GHz band.

Wireless bridges deliver building-to-building LAN connections for hard-to-wire or cost prohibitive applications. Aironet BRE100 Wireless Bridges use radio frequency (RF) links to connect two or more Ethernet or Token Ring networks, or a combination of these networks. By sending data "over the air" through RF links, Aironet says its wireless bridges eliminate costly and time-consuming cable connections, right-of-way negotiations and service fees associated with dedicated or leased line installations. The BRE100 Series provides this link at speeds comparable to E-1 (2.048 Mbps) lines.

The Aironet BRE100 Series come with a wireless bridge, antenna, cables, lightning arrestor, power supply and mounting kit. One package is required for each building or network connected. When purchasing a bridge package, there are two basic choices — the BRE105 and the BRE110. The BRE105 provides a 2 Mbps connection supporting distances up to 5 km using a 13.5 dBi Yagi antenna. The BRE110 system supports a 2 Mbps connection supporting distances up to 10 km using a 21 dBi parabolic dish antenna.

#### NEW PROGRAM IMPROVES REAL TIME'S QUALITY, RELIABILITY

Internet telephony provider Open Port Technology Inc. ([www.openport.com/html/index.cgi](http://WWW.openport.com/html/index.cgi)) says it has a new technology that enhances the quality and reliability of real-time fax transmissions over Internet protocols, overcoming the issues associated with packet loss and packet latency.

The delivery of real-time telephony services over IP networks is currently hampered because of lag time. Open Port says it can increase the successful transmission rate for real-time faxing over IP networks. According to Nandyal, Open Port offers significant performance improvements over other vendors' current offerings. "Our preliminary research shows that our approach allows us to accommodate IP backbones with spike latencies as high as 600 milliseconds," he said.

Open Port's approach to real time faxing consists of three distinct connections that are synchronized with each other to allow the inbound and outbound fax transmission to occur concurrently. As the fax is being transmitted and received over the IP network, Open Port software synchronizes fax messages at key points during the transmission. As a result, the fax transactions can overcome packet latency and loss, thereby surviving over a much wider range of network conditions. This enables many more ISPs to offer real time fax-over-IP services.

#### FUNK'S NEW VERSION OF STEEL-BELTED RADIUS

Funk Software ([www.funk.com](http://WWW.funk.com)) has released Steel-Belted Radius, the latest software version for its RADIUS server. The program, Steel-Belted Radius v2.1, adds support for SQL databases from Informix, Oracle, and Sybase. It also supports virtual private networks and tunnels, permits easy customization of authentication and accounting plug-in modules, and bolsters Sun Microsystems' Solaris platform.

Steel-Belted Radius lets network managers, ISPs and other providers of remote access centralize the authentication, authorization, and accounting of remote users, greatly reducing a provider's administrative burden and enhancing network security. ♦

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\*April 1998 Business Communications Review.

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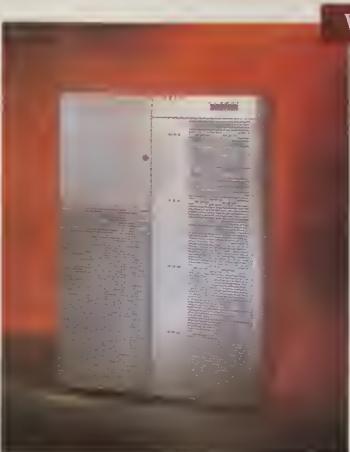
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Linux Journal

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Jim Thompson is managing editor of Western News Service in Los Angeles, California. He receives mail at [jim.thompson@wnsnews.com](mailto:jim.thompson@wnsnews.com)

# TECHNOLOGY FRONT

by Jim Thompson  
Western News Service

## FIGHTING 'VANDALS' WITH VIRUSSWEEP EXTRA STRENGTH

Notes, tips and suggestions from **Boardwatch** readers concerning virus attacks continue to come across my desk. There is no doubt that I was not alone in the virus attack problem I was hit with a few months ago. Among those who contacted me was Quarterdeck Corporation. Along with suggestions, they also sent a copy of ViruSweep Extra Strength - the latest weapon in their arsenal against virus attacks. I have used the product for more than a month. I am impressed enough to want to pass along the information to all of you.

### VANDALS

The main feature in this new product is what Quarterdeck calls "eSafe Protect Anti-Vandal technology," which can actively protect against "vandals" spread across the Internet. Vandals are a new breed of virus and potentially much more deadly than traditional attacks. A normal virus does not have the ability to execute on its own. They can remain on your drive and not do a thing.

Vandals are far more deadly and much more scary because they are auto-executable applications. Although some are deliberately created, others can reportedly result from bugs or mistakes from running a combination of software. (I had a few sleepless nights after hearing about this possibility!)

Vandals can infiltrate a computer via push technology programs, they can be piggybacked on Java applets or ActiveX objects, or find their way into your system as streamed content or in plug-ins. To make it worse, vandals execute immediately after arriving at the target computer via a Web browser, e-mail client or other Internet applications. Under most circumstances, there is no way to know if you are being attacked, so by the time you realize that you have a virus, it's too late.

Vandals hide in places where they can easily attack your system. Attachments to e-mail are one of the big threats nowadays since they can carry any Internet threat, virus infection or vandal program. When you open the attachment the e-mail client immediately launches the program needed to activate the attach-

ment such as MS Word in the case of a .DOC file. If there is a virus in the attachment it will trigger once the application is run.

Another major source of vandals is the simple act of Web surfing. Java and ActiveX are the biggest danger here since they are downloaded and executed immediately. Plug-ins, especially the auto-executing type, and Netcasting (push technology) are another potential source of virus infection.

Most anti-virus programs use a "scanning" approach so they usually can't handle this new threat. The eSafe technology can actually prevent vandals from entering your system.



While providing a high degree of protection, eSafe Protect doesn't block the entry of unknown code, Java applets, ActiveX controls or other programs and files from being downloaded or copied to your computer. According to Quarterdeck Corporation:

"All downloaded elements are placed inside eSafe Protect's 'Total Sandbox Quarantine.' This is a sterile environment where downloaded programs are kept under close surveillance. The sandbox consists of the areas on your hard disk which have been defined as 'approved' for an application - a specific Sandbox is created for each application. eSafe Protect ensures that applications stay within the limits assigned to them and enforces the Sandbox segmentation of restricted and allowed regions of your hard disk. In this closed system, the behavior of every object is closely monitored, and protection is based on a set of privileges defined for each application. The moment any program tries to execute commands or access data outside the portions of your system associated with that application, eSafe Protect notifies you, and you can then allow or disallow that access. You can allow access for this time only or permanently allow the application to access the file or directory."

During the installation process, programs on your system are detected and ViruSweep defines the regions that each program can access. It also, "saves

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all possible access patterns to your hard drive for every application a vandal may try to attack."

Using the Personal Firewall feature, you can configure your PC to allow or restrict Internet access via http, FTP, SMTP and other ports. Additionally, you can assign access rights to specific IP addresses, providing a customizable level of protection against intrusion.

For example, you could allow all Internet traffic through the http port, but disable the addresses for particular Web sites. This also provides a barrier against Internet use such as restriction to sex sites, limits on commercial activity (use of credit card) and even limits on the amount or the time of use. A "Secret Information" feature alerts you when sensitive information, such as a password or credit card number, is transmitted in an unencrypted form.

ViruSweep Extra Strength continually monitors your system in the background for all known and unidentified viruses including macro, boot sector, standard file, polymorphic, stealth, encrypted, multipartite and Trojan horse. If a suspected virus is detected, several options are offered, including the ability to continue scanning without interruption, removal of the virus from the infected file, backing up the infected file before deleting it or cleaning it, and deleting the infected file completely.

If an application tries to access resources outside its defined region, you are given the opportunity to decide what to do. You can allow it all the time or allow it for this time only. All violations can also be written to a report file for later analysis.

## CONFIGURATION AND INSTALLATION

Installation of the product is a breeze. Configuration is equally easy thanks to a Configuration Wizard that takes you through a step-by-step process which analyzes all Internet-enabled applications. It then automatically configures the program with the correct settings. The Configuration Wizard also features the automatic removal of unwanted cache files and cookies.

Once installed, you always know you are being protected thanks to a meter which graphically illustrates the threat and protection levels associated with a particular operation. The meter displays the level of the threat (from low to high) for FTP (displayed when your system is transferring files over the Internet), Web (displayed when using HTML to exchange Web content over the Internet), mail (displayed when sending or receiving e-mail) and other operations (displayed when using any other communication protocols such as Telnet, ECHO, LINK, etc.). This meter can be adjusted to display low, normal or extreme levels of threat.

Once installed, ViruSweep Watch continually and automatically checks for viruses. Every new file introduced into your system, whether it is downloaded, detached from an e-mail message, or copied from a floppy or network drive, is checked. It also scans programs you run on Word or Excel documents that are opened from the local hard drive or the network server.



Another major plus for ViruSweep Extra Strength is the Quarterdeck Anti-Virus Research Center (QUARC), which is part of Quarterdeck's support center. This research and development lab is dedicated to the detection, identification and removal of thousands of known and unknown viruses. As new viruses are identified, QUARC posts descriptions of each virus on its Web site and provides protection against them. Quarterdeck updates their virus library every month so you will always have the latest weapons in the continuing fight against virus infection.

## CONCLUSION

When it comes to virus infection the question is not "if" but "when." It is just a matter of time before you, too, will be fighting the effects of a virus intrusion. With the new Internet technologies, the threat is escalating every day. According to one source, at the start of 1987, there were a total of six different viruses. Ten years later there were "close to 12,000." During this 10 year period, the number of viruses doubled 11.5 times or every 10.5 months. Using these figures, there are now some 24,000 viruses and that number will double by next year.

Macro viruses are increasing at an even more alarming rate. In August 1995, there was a single macro virus. One year later (August 1996) there were 42. In June 1997, the number of macro viruses jumped to 1,000 which is a doubling rate of only two months. In the next 12 months, it is estimated that more than 42 percent of all computers will suffer some sort of virus infection.

Faced with these figures, it is foolish not to have some sort of protection against virus infection. I have used ViruSweep Extra Strength for more than a month. In that time it has performed flawlessly. It's well behaved and it doesn't get in the way of other applications. At the same time, it provides an extremely high level of protection. I also like the meter which gives me a graphic view of what it is doing and the current level of threat to my system.

If you add to this the backing of Quarterdeck Corporation and its Anti-Virus Research Center, you have one of the best virus detection products on the market. ♦

**System Requirements:**  
Intel or compatible PC  
486 DX66 processor or higher  
Windows 95  
8 MB of RAM  
12 MB of free hard disk space  
VGA or higher resolution monitor  
CD-ROM drive  
3.5" disk drive

**Supported Browsers:**  
Microsoft Internet Explorer  
3.x or higher, Netscape  
Navigator 3.x or higher

**CONTACT**

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# PUTTING THE NET TO WORK

by Durant Imboden

## DICTION FROM THE ROAD, AND NAMING NAMES

### MOBILEWORD

Laptops have revolutionized many tasks associated with business travel, from order entry to communications by e-mail. But when it comes to heavy-duty word processing, even a top-of-the-line ThinkPad or Tecra doesn't do much for the road warrior whose typing skills haven't progressed beyond the hunt-and-peck stage.

Hotel business centers aren't always a practical solution, since the wandering executive or sales rep may be flying off to Cleveland before a document can be typed up in Memphis.

Enter a knight in shining armor: Robert Cox, whose MobileWord TalkText service provides "anywhere, anytime" dictation service to travelers, hyperkinetic executives, small-business owners who lack secretaries, and gilt-edged consultants whose clients aren't willing to subsidize a \$500-an-hour typing habit.

MobileWord's TalkText combines telephone dictation with "...online digital delivery of voice-processed files over the Internet." Here's how it works:

You've just finished a meeting in Wichita, and tomorrow you'll be in Imboden, Arkansas, to present a marketing plan to the Wiggleworm Fishing Lure Corporation. You spend the evening making last-minute revisions to your typewritten sales pitch. When you're finished, you call MobileWord toll-free at 1-888-TALK-TEXT.

At the voice menu prompt, you press "1" for "To leave dictation." You enter a priority code and account number, then start talking to a digital recording apparatus. When you finish, you hang up.

The next afternoon, after checking into the Imboden Hyatt Westin, you power up your laptop and log onto MobileWord's Web site at [www.mobileword.com](http://www.mobileword.com). You select "Get Files" and enter your user name and access code. MobileWord displays a list of your filenames; you select a file and click the "Download" button to retrieve a WordPerfect file of your dictation, which was transcribed by a human "CyberScribe" during the 12 hours that it took you to get from Wichita to rural Arkansas. The total cost is less than your minibar bill.



Robert Cox, MobileWord's founder and CEO, is a former Booz, Allen & Hamilton management consultant who launched his company with a small group of investors from the University of Chicago in 1996. MobileWord's TalkText went online in June 1997. In its first year of operation, the service has attracted clients like Reuters, Deutsche Bank, TBWA/Chiat-Day, Young & Rubicam, Viacom's Showtime Championship Boxing, and many SOHO businesses that need virtual secretaries who can type and spell.

MobileWord has a variety of TalkText pricing plans, with dictation costs averaging \$3.50 to \$5 a page. Large organizations can negotiate special rates based on high-volume use.

Cox says that the current TalkText service is just the first of several offerings. For example, the company is beta-testing a system called "FileTransport" that will let users exchange files through their Web browsers, using the Internet's HTTP protocol. Like TalkText, FileTransport is intended to strike a blow against the "time famine" that hampers productivity, takes workers away from their families, and ultimately "robs employers of the intellectual capital of their employees."

### REAL NAME

As recently as 1993, the World Wide Web had about as many sites as there are people in Ouray, Colorado. The World Wide Worm's list of Web pages wasn't much longer than the menu at my local Perkins' coffee shop.

Today, one search engine - AltaVista - has more than 140 million pages in its database. Search on the name "Volkswagen," and AltaVista will return 315,540 hits. You could narrow that down by searching on "Volkswagen Beetle," but you'd still get 141,411 citations - and you could scroll through many pages of AltaVista listings before finding the official Volkswagen New Beetle specifications page.

For you, as a user, this may be a nuisance - but for Volkswagen's Web master and interactive-marketing agency, it could mean the difference between a year-end bonus and a pink slip. They need a sure-fire way to get prospects to the VW Web site. Real Name, at [www.realnames.com](http://www.realnames.com), was designed to help them do just that.

Let's say that you're the Director of Interactive Marketing at VW's ad agency. You go to the Real

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Name Web site and subscribe to the term "Volkswagen Beetle," assigning it to the New Beetle page at [www.volkswagen.com](http://www.volkswagen.com). For this, you pay \$40 a year plus a penny per hit after 10,000 Real Name impressions.

From now on, a user who types "Volkswagen Beetle" in the Real Name search window will be redirected to the New Beetle page.

"Big deal," you say. "Who's going to visit the Real Name search site?"

Answer: Users don't have to. They can try a "Real Name-enabled" search engine like AltaVista, where a query on "Volkswagen Beetle" will display the line "Real Name address - Volkswagen Beetle" at the very top of the hit list, ahead of 141,410 other VW Beetle pages. One click, and the browser opens the official New Beetle page.

A Real Name browser plug-in is another option. With the free plug-in, a user can simply type "Volkswagen Beetle" on the address line and be whisked to the appropriate Web document. (This is handy for technically challenged users who have favorite Web sites but don't grasp the concepts of bookmarks and URLs.)

Unfortunately, there's a downside: the current Real Name scheme is poorly implemented, and the "appropriateness" standards for Real Names aren't enforced consistently. This makes the service frustrating to users and potential advertisers alike.

Let's pretend you're a user who wants to learn about the Yukon. You type "Yukon," and you're taken not to a site about the Yukon, but to a General Motors page on the Yukon and Suburban sport-utility vehicles. Type "Alaska," and you see a Castle Rock Entertainment ad for a 1996 movie titled *Alaska*. (I'm indebted to Murray Lundberg of The Mining Co.'s Yukon and Alaska History site, <http://yukonalaska.miningco.com>, for these examples.)

Now, let's say that you're like Brad Lang, who writes about movies at <http://classicfilm.miningco.com>. Your site's brand name is "Classic Movies," so you register for the "Classic Movies" Real Name - only to be told that it's too generic, and that your subscription has been turned down.

While Real Name's appropriateness policy may seem admirable, its enforcement is spotty at best. As I write this, the generic term "northwest" is assigned to Northwest Airlines, "carnival" is owned by Carnival Cruise Lines, "word" takes the user to a Microsoft Office page, and the public-domain name "Robin Hood" whisks a researcher of English legends to Walt Disney Home Video's main screen.

This would be merely distasteful if every search in AltaVista didn't produce a Real Name citation at the top of the hit list. But when that citation is accompanied by a short pitch for the Real Name service, there's a strong implication that the search term is for sale - as it may be for some corporations' brands, trademarks, and slogans, but wasn't in the case of Brad Lang's "Classic Movies" name.

I asked Real Name about this inconsistency and got a reply from Henry Chen, an analyst at Centraal Corporation (Real

Name's parent company). Chen claimed that the existing index had been created before the firm had subscribers, and that it was being "cleaned up and phased out." He also passed along a two-page letter from Bill Washburn, Centraal's Chief of Content and Logic, that said:

"It is not our intention to bias navigation results in favor of any particular company or group of companies. After all, we clearly know that any short-sighted idea that we could reap quick financial advantage by setting up policies that unfairly favor big companies and ignores small businesses and end-users is doomed from the outset."

Washburn added that the Real Name appropriateness policy was based on "user expectations," and that the challenge for his company was to "cope appropriately, astutely, and judiciously with the real world we live in where no criterion is absolutely sacrosanct."

Usability may be an even bigger stumbling block than fairness to Real Name's success. As I write this, every AltaVista search yields a Real Name address - despite the fact that a generic term like "Europe," "doughnuts," "trains," or "Baptists" doesn't qualify for Real Name status. Click on "Real Name address - poodles," and you'll be taken to a page that says:

"A Real Name address is a Web address. There is no site with the Real Name address 'poodles.' Either it has not yet been assigned, or it is a generic address which will not be assigned to one entity. Please check the shortlist below for a suggested list of sites that match your entry."

Real Name then lists a handful of poodle sites that could have been lifted at random from an AltaVista search.

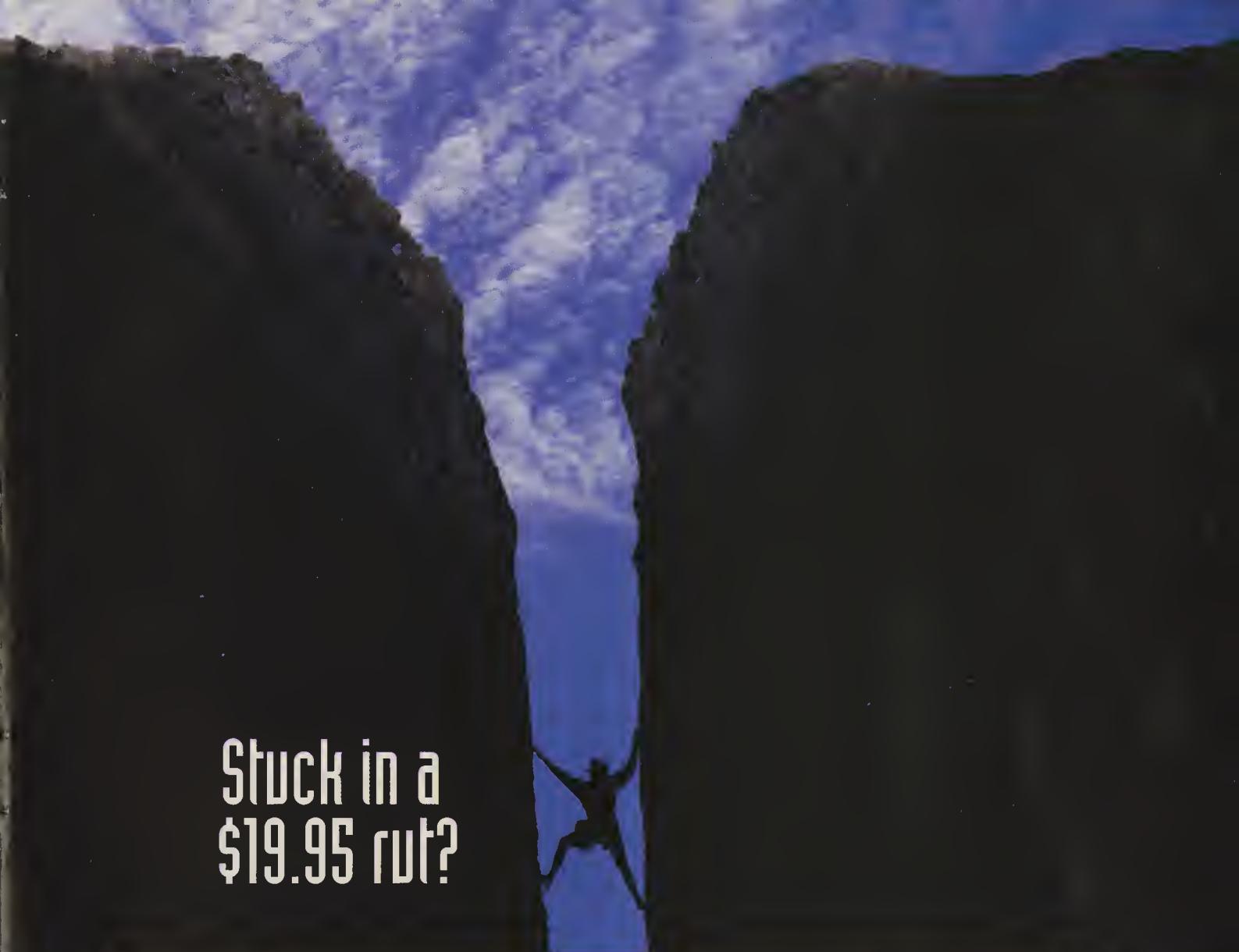
But the biggest threat to Real Name may be Netscape's announcement of an "Internet keywords" feature at NetCenter (<http://home.netscape.com/netcenter>). By entering trademarks or brand names into a search window, users will be taken directly to corporate sites.

Netscape's "Internet keywords" functionality may be incorporated into future generations of the Communicator browser, and it's reasonable to assume that Microsoft has similar plans for Internet Explorer. If this happens, there won't be any need for Real Name, unless Microsoft buys Real Name instead of developing an "Internet keywords" database of its own.

Still, for many longtime Web users, the real problem isn't how fairly names are assigned, how easy they are to use, or how they're implemented. Rather, it's the whole idea of corporations or ad agencies buying preferential treatment from search engines and browser companies.

Real Name and Netscape's Internet keywords may be just the first step toward a Web where everything is for sale. What comes after Real Name's deal for the No. 1 spot in AltaVista? An auction of Top 100 rankings for every keyword or phrase in Yahoo!, AltaVista, Excite, Lycos, HotBot, and Infoseek? The possibilities are disturbing, and it may not be long before old-timers wax nostalgic about the good old days before big business owned the Web. ♦





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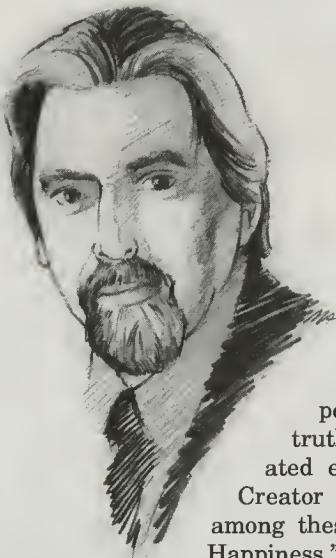
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# @INTERNET by Thom Stark

## WHAT IS AND WHAT SHOULD NEVER BE

Thomas Jefferson had it easy. As the father of the Declaration of Independence, he got to declare, "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness." He then went on to state that "it is the Right of the People to ... institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness." Grandly eloquent and electrifying generalizations though they are, the truth is that all of these inspiring declarations are still merely generalizations.

It fell to James Madison, as the father of the Constitution, ([www.eff.org/pub/Legislation/Constitution/constitution.us](http://www.eff.org/pub/Legislation/Constitution/constitution.us)) to translate Jefferson's exalted vision into a practical, fair and inclusive set of laws by which the 13 colonies would be bound together into a single nation.

In California, where I live, there are general law counties - whose government structure is dictated solely by the California Constitution ([www.leginfo.ca.gov/const-toc.html](http://www.leginfo.ca.gov/const-toc.html)) - and charter counties - which have the option of making changes in the default organization the state constitution dictates. For the past 18 months, I've served on the Contra Costa County Charter Commission, where we looked at the effect adopting a charter would have on the efficiency and effectiveness of our county government ([www.co.contra-costa.ca.us/](http://www.co.contra-costa.ca.us/)).

There were a lot of reasons why I became a member of the Charter Commission, but I mainly wanted to try to capture some distant echo of what the Founding Fathers went through. I wanted to experience for myself the art of balancing the demands of special interests against the best good of the electorate as a whole, the need for specific language against the sin of micro-management and the desire to create wholesale change against the practical concerns of *realpolitik*.

Much as Madison must have, I've discovered the universal truth in the observation that the devil is always in the details. Unlike our draft county charter, the document Madison oversaw was unique in human history. He was making things up as he went along, then reality-checking his formulations against the criticism and suggestions he got from other delegates to the Constitutional Convention.

### TELL IT LIKE IT IS

Since Madison and his fellow delegates were only human, the Constitution they produced was less than perfect. While the core document went into great detail about how the new federal government would work, it lacked any guarantees about those "inalienable rights" to life, liberty and the pursuit of happiness that Jefferson's Declaration had so stirringly itemized. Thus, in 1789, two years after the adoption of the Constitution itself, Madison went back to the drawing board and came up with 10 amendments that, between them, detailed those Jeffersonian principles in what we know as the Bill of Rights ([www.parasoft.com/~ahicken/usdocs/billo\\_rights.html](http://www.parasoft.com/~ahicken/usdocs/billo_rights.html)).

I'm a writer, so the first of those amendments, which — among other things — forbids Congress from making any law "abridging the freedom of speech, or of the press," is pretty darned important to me. When I run across anyone trying to take away that Constitutionally-protected freedom, I take it very personally.

Now, over the years, I've had nothing but good things to say about McAfee Associates. Their products were technically excellent and well-supported and I often found occasion to laud their shareware-based marketing model and their open-handed policy toward private use of their antivirus software, both in print and to my consulting clients. When McAfee bought network management tools from other vendors and put fully-functional versions of them on their FTP server for download and evaluation years before other network technology companies discovered the Internet, my respect and admiration for their integrity and commitment to openness grew apace.

Then, in 1997, McAfee merged with Network General Corporation and the combined entity changed its name to Network Associates, Inc.

Unfortunately, that's not all that changed.

I've never had much good to say about Network General. I always thought their Sniffer software was overpriced, needlessly over-complicated and marketed by people who lacked respect for their customers. Where McAfee let the superior value of their products do its marketing, I'd always gotten the uncomfortable impression that Network General looked at their clientele as nothing more than wallets with legs.

A few days ago, I realized how out-of-date my antivirus software was, so I fired up my browser and

Thom Stark is president of STARK REALITIES, a consulting firm based in the San Francisco Bay Area, which specializes in integrating Internet technologies into existing business networks. He also conducts seminars and tutorials about the Internet at trade shows and for business and user groups. He is the author of the serialized online science fiction novel, *A Season in Methven*, ([www.starkrealities.com/Methven/](http://www.starkrealities.com/Methven/)). Mr. Stark maintains a non-commercial Web site that focuses on IP internetworking technology and policy issues at [www.starkrealities.com](http://www.starkrealities.com) and his e-mail address is [thom@starkrealities.com](mailto:thom@starkrealities.com).

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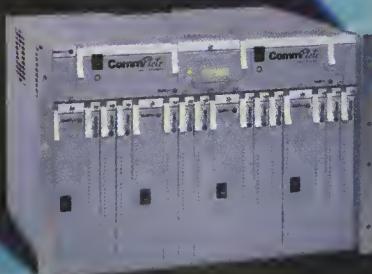
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headed for what I thought was good 'ol McAfee's FTP site. I had no idea what profound changes had occurred to the once-friendly and accessible McAfee software archive, but I soon discovered the bitter truth.

In the subdirectory where I expected to find the latest version of the once-and-future McAfee flagship product, VirusScan, I instead discovered only a *README.TXT* and an *HTML* file, both of which pointed to Network Associates' form for evaluation software downloads. As I read the contents of that page, I found myself getting angrier and angrier.

## WHAT A BRINGDOWN

I have no objection to companies requiring users to fill out a registration form prior to downloading evaluation software. It's a pretty minor inconvenience and the advantage of being able to test-drive a product before you lay out your hard-earned green for it is worth the petty hassle. I *do* object to companies using such forms to force potential customers to disclose information which will both be abused by their own marketing departments and — adding gratuitous insult to unwarranted injury — resold to other marketing firms.

Network Associates' download form does both things, and, in order to keep both their marketeers and an endless procession of other bozos from flooding you with junk, you're forced to call or send e-mail to NAI specifically (and separately) requesting to have your name taken off their junk e-mail, snail mail and telemarketing lists AND to have it removed from the lists they sell to other vendors. And the instructions for doing so — and the disclosure that NAI *will* resell your contact information to third parties — are on a different page than the download form itself.

All that is merely irksomely cynical, clueless and selfish. What revolts me to the very core of my civil libertarian's soul are the following two provisions of the "other rules and regulations of installing this software" at the bottom of the download form:

2. The customer shall not disclose the results of any benchmark test to any third party without Network Associates' prior written approval.
3. The customer will not publish reviews of the product without prior consent from Network Associates.

Just think about those restrictions for a moment.

If your subscribers ask you how VirusScan stacks up against other anti-virus software, according to rule 2, *you can't tell them*, regardless of whether your experience has been good or bad. Much, MUCH worse from my perspective, I can't tell my own clients what I think of VirusScan, or, more importantly, of its server-based cousin, NetShield, without getting Network Associates' permission first.

Since I make a significant chunk of my income from network consulting, Network Associates' attempt to prevent me from giving an unbiased opinion about issues such as NetShield's impact on server performance and consumption of server resources—both of which definitely qualify as benchmark data—seriously diminishes the value of the advice I can offer my clients. That hurts me where I live and I resent the heck out of it.

And then there's rule 3.

I modestly assume that you read this column because you value what I have to say. I'll go further than that. I'm morally certain that, when I write in praise of a given piece of software, most of you believe that what I say is based on the merits of the product and that I'm not whoring myself out to the highest bidder. When I give a product a bad review, I think you understand that I do so only to try and spare you an ordeal that I have already personally wrestled with. Ever since I began writing this column in April 1994, I've tried to simply tell the truth about my experiences without fear or favor and let the chips fall wherever they may.

Rule 3 wants to change that. Rule 3 wants to force me to get *permission* from Network Associates before I write about their products. Rule 3 wants to keep you from ever reading a negative review of those products. Rule 3 wants to turn technical reviewers into extensions of NAI's marketing department.

Rule 3 makes me want to do hideous things to Network Associates with a spatula.

## WHO ARE THE BRAIN POLICE?

Mark Twain advised, "When angry, count to ten. When very angry, swear."

I'll leave the alternative I chose as an exercise for the reader.

After I calmed down — a process that took awhile — I sent e-mail to Network Associates expressing my displeasure with their evaluation license policy and warning them that, unless they changed it, I'd be writing this column. I gave them a week to respond.

They never bothered even to acknowledge receipt of my e-mail, of course.

In fairness to Network Associates, I made it a point to research whether the language in their "other rules and regulations" was unique to them. I did a basic search on Alta Vista using the string "+shall not disclose" +"prior written approval" - mcafee' and turned up 208 entries that fit the search criteria.

As it turned out, well more than half of them linked to mirrors of the NAI archives. A goodly number of the rest pointed to some iteration of Oracle's Oracle7 ODBC driver license agreement ([www.oracle.com/products/oracle7/odbc/trialLicense.html](http://www.oracle.com/products/oracle7/odbc/trialLicense.html)), and a significant minority connected to mind-numbingly dense corporate disclosure filings on the Security and Exchange Commission's Web site. There were also a number of hits on other, non-germane pages, mostly relating to provisions of contractor agreements relating to the disclosure of trade secrets or to software covered by the International Traffic in Arms Regulations.

That left a small, but interesting international Hall of Shame. It includes Harris Corporation's evaluation terms for Stake Out, ([www.stakeout.harris.com/download\\_form.html](http://www.stakeout.harris.com/download_form.html)) a TCP/IP security monitoring application, Inlab Software, GmbH's trial license agreement for Inlab-Scheme ([www.munich.net/inlab/scheme/](http://www.munich.net/inlab/scheme/)), an implementation of the Scheme language for Linux and FreeBSD, and Internet Marketing Services/Universal Graphics-Online's software terms and conditions for, of all things, HTML code ([www.universalgraphics.com/disclaim.htm](http://www.universalgraphics.com/disclaim.htm)), which begs the question of how, precisely, one goes about benchmarking

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HTML! Of course, IMS/UGO's pages are also rife with grammatical and spelling errors, which to me indicates a certain inherent deficiency of clue anyway. I also found the same "other rules and regulations" restrictions in the download page for Pisoft's Concierto accounting products ([www.pisoft.com/html/demo\\_area.html](http://www.pisoft.com/html/demo_area.html)), in Sterling Software's license agreement for STAR:View, a 3270-to-HTML dynamic translation application ([www.star.sterling.com/STARVIEW/license.html](http://www.star.sterling.com/STARVIEW/license.html)), in the license agreement for Stonesoft's Stone Application Factory, an object-oriented computer-aided software engineering tool ([www.stone.fi/products/stoneaf/eng/afom/eval/afom\\_weblic.html](http://www.stone.fi/products/stoneaf/eng/afom/eval/afom_weblic.html)) and in Wyoming Software's Web8 application server ([www.wyomingsoftware.com/web8/plsql/oad.license](http://www.wyomingsoftware.com/web8/plsql/oad.license)), which, unsurprisingly, requires an Oracle server on the back end.

I got a real kick out of POLLOCKGRAPHICS free viewing license, (<http://pages.ripco.com:8080/~franz/legal.html>) though. It, too, forbids the disclosure of benchmark data to a third party without the prior written approval of Jim Pollock — and imposes still more stringent restrictions on U.S. government agencies and the Department of Defense.

Jim Pollock, you see, is an artist whose chosen medium is line-oleum print and who is a devoted fan of the band Phish. His site is basically a virtual art gallery which features GIFs of his work. His "free viewing license" is strictly a tongue-in-cheek poke in the virtual eye of self-important, barrister-ridden corporate doo-doo heads, like those I've just cited.

So, Mr. Pollock aside, what do these wanna-be squelchers of free speech and honest evaluation by disinterested third par-

ties have in common? They're pretty much either obvious nitwits who have poached somebody else's legalese bafflegab and dropped it, unexamined, into their own disclaimers or vendors whose native market is the traditional, mainframe-centric, corporate IS department.

Like the former Network General Corporation, for instance.

## DON'T TOUCH ME THERE

I thought about purposefully violating Network Associates' "other rules and regulations" by downloading an evaluation copy of the current version of NetShield, putting it through its paces, publishing the results in this column and then challenging NAI to sue me over it. I finally decided against that course of action because I think their "other rules and regulations" are an empty threat. I think the very last thing NAI wants to do is to sue someone like me for publishing an unauthorized review of their software, because they're as sure as I am that they'd lose.

In my view - and I hasten to note here that I'm not a lawyer and I don't play one on TV — they are engaged in what's called "prior restraint." That's what you call it when someone tries to prevent you from exercising your right to speak your mind and that's what, in my opinion, NAI is trying to do.

Judges tend to have little tolerance for that kind of behavior and are likely to view a lawsuit brought by a business that's engaged in such conduct as a Strategic Lawsuit Against Public Participation - what's known as a SLAPP. Those are illegal under Federal law and the penalties for engaging in a SLAPP are harsh.

But, even though I'm convinced that Network Associates' "other rules and regulations" are just so much hot air and that NAI is certainly not prepared to put up a fight over them, they still stick in my craw. You see, I think the Bill of Rights is not just a dusty manuscript of interest only to high school civics teachers and NRA members. I think it's a vital, living document that has real and direct meaning for your life and mine. I think the freedoms it guarantees us are worth fighting for and I'm just not willing to see any of them casually compromised by corporate bullies.

So...

You may have noticed that, throughout this little screed, I've carefully avoided disclosing the URL of the Network Associates page that so outraged me. I'm not going to reveal it now, either, because I don't want to tempt you to visit NAI's Web site, even out of curiosity.

Quite the contrary.

What I want to do, instead, is to encourage you, dear reader, to avoid NAI and its products as if they were the plague and you were fresh out of tetracycline. Unless and until NAI drops their underhanded attempt to muzzle honest reviews of their software, I want to urge you to join me in boycotting them.

Don't use their products and don't recommend them to your users. If you have links to their Web pages, comment them out. Let's kick them where it hurts the most — square in their bottom line. And let's keep on kicking them until they cry "Uncle."

That sound you hear? That's the spirits of Thomas Jefferson and James Madison cheering from the sidelines, "Hit 'em again. Harder!"♦

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# CONSUMMATE WINSOCK APPS

by Forrest Stroud

## THE MOST POPULAR APPS ON THE NET

The applications reviewed here and many more are available at Stroud's Consummate Winsock Apps List, <http://cws.internet.com> and [www.stroud.com](http://www.stroud.com).

Forrest Stroud currently works in College Station, Texas as a Web developer for Mecklermedia Corporation. He recently graduated with honors from The University of Texas at Austin. The Information Systems and Data Communications Management major enjoys spending what little free time he has with his wife Joanne and the 'zoo' - an ever-expanding collection of pets that currently consists of a Dalmatian-pup (Svoda Pop), a chocolate lab cross (Roemer), a German Shepherd pup (Marius), and a pair of rascally kittens (Odie Pez and Bo Miggy). Animal lovers can check out pictures of the pets on Stroud's home page at <http://home.sprynet.com/sprynet/neuroses>.

One of CWSApps' newest features is a Top 25 Downloads section, which highlights the most popular apps on the Internet according to our users. The weekly and monthly reports are a fun way to check out what apps other users are downloading and to see which recent upgrades are getting the most attention. Our companion site ServerWatch now offers a similar section for servers and development tools.

As a preview of what the Top 25 Downloads section has to offer, here's a highlight of the latest top five apps to be downloaded from CWSApps:

### 5. Winsock2 -

A critical upgrade for most anyone with a Net connection

CWSApps Location -

<http://cws.internet.com/32crit.html#winsock2>

### 4. WinAMP -

By far the best MPEG Layer 3 audio player on the Net

CWSApps Location -

<http://cws.internet.com/32audio.html#winamp>

### 3. Netscape Communicator -

The best web browser/net suite available

CWSApps Location -

<http://cws.internet.com/32www.html#netscom>

### 2. RealPlayer G2 -

The most advanced real-time audio and video streaming player

CWSApps Location -

<http://cws.internet.com/32audio.html#realplay>

### 1. WinZip -

An absolute must-have file compression/decompression utility

CWSApps Location -

<http://cws.internet.com/32comp.html#winzip>

For complete results check out:

Weekly Top 25 Downloads -

<http://cws.internet.com/top25weekly.html>

Monthly Top 25 Downloads -

<http://cws.internet.com/top25monthly.html>

## FTP Voyager



**Desc:** A Windows 95 Explorer-like FTP client with an unrivaled set of features  
**Pros:** Excellent feature-set, Windows Explorer-like interface, folder shortcuts, synchronization tools, easy to use  
**Cons:** Synchronization tools are rivaled by standalone sync clients like Internet Neighborhood and FTP OutBox  
**Location:** <ftp://198.109.117.2/pub/ftpvoyager/ftpv6000.exe>  
**Platforms:** Windows 95/98, Windows NT  
**Status:** Free 30-day evaluation. Shareware - \$37.95  
**Company:** Deerfield.com  
**Website:** [www.ftpvoyager.com](http://www.ftpvoyager.com)

Rhino Software's **FTP Voyager** is a relatively new 32-bit FTP client that patterns itself after the Windows 95/NT Explorer interface. The latest releases of FTP Voyager displays the remote site's files as well as a local view of your desktop's files, an appealing feature that goes beyond similar FTP clients like FTP Explorer and FTP Icon Connection which also pattern themselves after Explorer.

The interface is instead more like WS-FTP and CuteFTP which use a side-by-side display for showing both the local site and the remote site at the same time. The major difference and one of its key distinctive competencies over WS-FTP and CuteFTP is that FTP Voyager's interface sports an Explorer-like feel. As a result, anyone who has used Windows 95 or Windows NT 4.0 before will feel right at home with FTP Voyager.

Many of Explorer's best features have found their way into the FTP Voyager interface, including multiple file display listings (icon, list, and details views), quick sorting on multiple keys (including name, size, type, and date of last modification), right-mouse context menus, quick drag and drop capabilities (including between FTP Voyager and Explorer), and property details for files.

The client also offers many critical file transfer features of its own. These include Folder Short Cuts, inclusive/exclusive file filtering capabilities, automatic conversion of file names on transfer, auto-resume capabilities, an Instant Stop feature, a Quick Connect tool, and quick searching capabilities. The Folder Short Cuts is one of FTP Voyager's most distinctive features. It allows you to create special folders that are easily accessible from the root directory even though the link may actually be a directory that is much deeper than the root directory itself.

FTP Voyager has benefited from massive improvements made over earlier releases and the results show in its meteoric rise up the FTP charts. The speed of the client has been greatly improved and is now more in line with the likes of CuteFTP, FTP Explorer, and WS-FTP. The client also now offers quick buttons that can connect to specific FTP sites automatically, launch the Windows Explorer for quick file transfers between the two clients, or automatically send a group of files upon connection.

In the latest releases a status/progress bar has been added as have special keyboard commands (including scrolling via the Page Up and Page Down keys), folder synchronization tools (great for maintaining web sites), dial-on-demand support, import capabilities (for CuteFTP, WS\_FTP, Internet Neighborhood, Bullet Proof FTP, and Crystal FTP), remote file editing capabilities, firewall/proxy support, an online help documentation system, retry support (automatically reconnects after a file transfer timeout), Keep Alive technology, auto rename capabilities, extensive configuration options (including configurable toolbars), an impressive new site manager, and an improved list of common anonymous FTP sites.

Registration for FTP Voyager costs \$37.95, which entitles you to technical support via e-mail as well as an entire year of free upgrades. In an extremely short period of time FTP Voyager has transformed itself from a mediocre client into one of the best - if not the best - FTP clients on the market. Thanks to its recent improvements, FTP Voyager has quickly climbed its way to the top of the category and now shares elite ground with the likes of CuteFTP and WS-FTP. With a rather inexpensive price tag and an ever-improving set of features, FTP Voyager is a solid FTP client that will likely appeal to beginning users, experts, and everyone in between.

**Inoculan AntiVirus**



Desc:	Eliminate virus threats from shared files, e-mail, Net downloads, and more
Pros:	Excellent detection capabilities, advanced support for networks and Internet downloads, inexpensive
Cons:	Performance and advanced configuration options lag behind competing offerings, homely interface
Location:	<a href="ftp://ftp.cheyenne.com/pub/InocuLAN/i10167s.zip">ftp://ftp.cheyenne.com/pub/InocuLAN/i10167s.zip</a>
Platforms:	Windows 95/98, Windows NT
Status:	Free 60-day evaluation. Commercialware - \$29.95
Company:	Computer Associates International, Inc.
Website:	<a href="http://www.cheyenne.com/desktop/productinfo/">www.cheyenne.com/desktop/productinfo/</a>

**Inoculan** has long been recognized as the premier virus scanning suite for Windows NT network environments, but with the recent release of a Windows 95 version the client now performs just as well on standalone computers. Those in need of a single package for effectively eliminating virus threats from floppy disks, removable disks, shared network files, e-mail attachments, and Internet downloads will find an excellent solution in Inoculan. Even better, for a limited time, users can purchase the Windows 95 version of Inoculan for a discounted price of \$29.95 (regularly \$69).

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It should come as no surprise that Inoculan performs at its best when protecting your LAN from viruses. Network protection features unique to Inoculan include: Virus Wall, which prevents infected workstations from spreading viruses to other workstations or your servers; Virus Quarantine, which works with Virus Wall to isolate an infected file (or files) before damage can be done to other files on the computer or on a networked computer; Microsoft Exchange and Lotus Notes agents that work to ensure messaging and groupware protection for your network; seamless integration with Netscape and Internet Explorer to provide real-time scanning protection when downloading files over the Net; real-time compressed file scanning capabilities for added protection against viruses residing in compressed files (with support for ZIP, ARJ, MIME, UUEncoded, CAB, and Microsoft Compressed formats); and Macro Virus Analyzer, which gives you advanced protection from Macro viruses.

Additional Inoculan features include: real-time scan and cure capabilities (via a VxD Virtual Device Drive that runs in the background); automatic virus definition and program updates (free for registered users); extensive alert options; real-time scanning for floppy disks; disaster recovery (via a rescue disk); advanced detection for all types of viruses (including boot sector, memory resident, file multipartite, stealth, and polymorphic viruses); heuristic technology for detecting many of the newer types of viruses (including a variety of known and unknown Macro viruses); command line support; traybar icon support; the ability to run as a system service (under Windows NT); an integrated virus encyclopedia (with brief details on the most common viruses); and Web links to Inoculan's excellent Virus Information Center Web site ([www.cheyenne.com/virusinfo/](http://www.cheyenne.com/virusinfo/)).

While both Norton AntiVirus and McAfee VirusScan offer more polished interfaces and better overall performance, Inoculan reigns supreme when used in network environments, especially under Windows NT. The competing offerings also present the user with more options and configuration choices. But when it comes to maximum protection, state-of-the-art detection capabilities, and the ability to protect your users from all types of virus threats, Inoculan is one of the best virus scanners currently available.

The **Crescendo** line of products makes it possible for users to listen to background MIDI music while browsing Web sites. Any Web site can add its own MIDI music by using the embed HTML tag, but only Crescendo makes it possible to stream MIDI music over the Web. On the client side there are actually two ways to realize the streaming benefits of Crescendo.

The first option is to download the freeware Crescendo plug-in. The standard Crescendo plug-in is available for both Netscape and Internet Explorer and can run on Windows 3.x, Windows 95/NT, and Macintosh platforms. It allows you to play any MIDI file encountered on the Web, but it can only stream MIDI files on sites that use Crescendo StreamSite. The second method for utilizing Crescendo's MIDI streaming technology requires the purchase of Crescendo Plus. This \$19.95 plug-in will stream all MIDI files on the Net regardless of whether the site you're visiting uses Crescendo StreamSite.

Crescendo StreamSite covers the server side of the MIDI streaming technology by enabling Web sites to serve their own streamed MIDI files to users of the Crescendo plug-in modules. StreamSite isn't exactly an encoder or server for your Web site; rather it's a site-specific "key-file" on your Web site that enables

## Crescendo



<b>Desc:</b>	A Netscape/I/E plug-in for playing streaming MIDI music on web pages
<b>Pros:</b>	Plug-in plays streamed MIDI files on the Web, StreamSite allows sites to serve streamed MIDI content
<b>Cons:</b>	Limited to MIDI audio content, freeware plug-in can only play streamed content on StreamSite web sites
<b>Location:</b>	ftp://ftp.liveupdate.com/plugins/c30n95.exe
<b>Platforms:</b>	Windows 95/98, Windows NT, Windows 3.x
<b>Status:</b>	Freeware. Crescendo Plus also available - \$19.95
<b>Company:</b>	Live Update
<b>Website:</b>	<a href="http://www.liveupdate.com/crescendo.html">www.liveupdate.com/crescendo.html</a>

the streaming of MIDI files when played with either of the two plug-ins. The cost of StreamSite ranges from \$49.95 for personal use to \$395 and up for small business use and larger enterprises.

While the Crescendo technology is limited to only MIDI music (i.e. it won't work with WAV, AU, and RealPlayer files), it is the only app currently available that does offer MIDI streaming support. If you have a Web site and want to serve streamed MIDI content, StreamSite is an application you won't want to do without, and if you regularly visit Web sites that offer background MIDI music, you'll definitely want to check out the freeware plug-in and perhaps the more advanced Crescendo Plus as well. ♦

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# ISP\$ MARKET REPORT

Paul Stapleton

## LECS STUMBLE - HOW TO GET BACK UP

**I**ntermedia Communications Inc. (Nasdaq-ICIX) is a big Florida based CLEC. Intermedia stock has been priced as high as \$91 1/4 per share in late March and now trades at \$77 1/4. That's a 15 percent drop. (Note: a 2-for-1 stock split is scheduled for between now and when this article will be printed.) However, one year ago ICIX traded at \$22 1/4. That's a net 247 percent increase. CLEC stocks in general have risen over 200 percent over the same period, which makes the S&P look like the slow boat to riches. Well all this sounds like a party I want to be at, but recently the market has moved CLECs down about 8 percent. Not a bad overall performance, but the recent redirection probably merits a look at Intermedia and the CLEC category in general.

ISPs are doing more and more business with CLECs and/or are considering becoming CLECs themselves. In fact, as I have stated before, I am having a harder time differentiating CLECs from ISPs than ever before.

Is Intermedia, which booked 26.6 percent of its 1Q98 revenue of \$136.8 million from the sale of Internet and Frame Relay services an ISP? What about ICG Communications (Nasdaq-ICGX), which may earn 37 percent of its estimated 1998 revenues of \$515 million from its NetCom division? Coming from the other side, what about PSINet (Nasdaq-PSIX) and Rocky Mountain Internet (Nasdaq-RMII), both of whom have deployed Cascade switches capable of offering a lot more than "Internet access?"

Of course CLECs, like ISPs are a large group in different stages of corporate development, varied geography, and pursuing different strategies. This makes generalization difficult, but we will do it anyway.

Intermedia is one of the older, better-established, independent CLECs. As such, they were expected to turn EBITDA positive in 2Q98. Their worse than expected 1Q98 performance of negative \$9.8 million (almost the same as the prior quarter's negative \$9.9 million) puts them off target for positive EBITDA in 2Q98.

Intermedia management cited four reasons for the miss: 1) Expected capacity from wholesaler Williams Companies (NYSE-WMB) did not come online so margins were higher; 2) Overhead for new business was added before the new business started; 3) The international long distance business was more difficult than expected; 4) Back office systems were overloaded.

Of course any ISP trying to get ports already knew this. The question is when will they get past this?

Wall Street offers little help in deciding. Intermedia has 14 of its 16 analysts rating it a strong buy or moderate buy despite the stock drop and the near certainty of the 2Q98 EBITDA miss.

Just remember, Intermedia raises a lot of money on the Street. Approximately, \$2.8 billion in debt and preferred is on the balance sheet. Your bank wants a piece of that business. You do not want to be the analyst that downgrades Intermedia or your Christmas bonus will not be as big as the guy down the hall.

But there are ways to spread the word, and somehow the market determined Intermedia needed to step back 20 percent as a penalty for missing the quarter.

And the burning question remains how to reach positive EBITDA?

Historically, there are three well-documented ways to enter a local market and become a CLEC:

- 1) Build the facilities. Theoretically this entitles you to higher gross margins (Telechoice says 70 percent) in the long term, but delays your time to market and is incredibly capital intensive.
- 2) Resell the incumbent's facilities. Resellers can lease dial tone from US Waste for 20 percent less than the market price. This gets you in the game real fast, but begs the question why enter the game at all? SG&A can eat up a 20 percent gross margin and then some.
- 3) Install your own switch and lease the loop (the copper). The industry has taken to calling this the "smart build," which may give you a clue as to which scenario makes the most sense. Analysts predict this method can generate gross margins in the 50 to 60 percent range and get you to market quickly.

Now I know to an ISP operator, scenario 1 and 2 above sound silly. ISPs have been using "smart builds" to deploy POPs since the beginning, but I assure you this debate was had. (In part because no one was very sure of the gross margins or the time to market under each scenario).

Naturally every CLEC with the required access to capital has a strategy that calls for a "smart build". It was commonly believed the smart build would get you to EBITDA. However, increased capacity and competition may not make that so. But I do believe the answer to positive EBITDA for CLECs and ISPs lies in part in the Intermedia explanation for the bad first quarter.

Paul Stapleton is senior vice president of Rampart Associates, Inc., an investment bank focused on ISPs and the broader communications and media markets. Visit the company at [www.rampart.net](http://www.rampart.net), call (303) 534-8585 or e-mail [paul@rampart.net](mailto:paul@rampart.net).

Stapleton is also editor of *ISP Report, The Financial Newsletter for Internet Service Providers*. An annual subscription is \$279.95. To subscribe, e-mail [ispreport@medialib.com](mailto:ispreport@medialib.com) or call (303) 271-9965, or fax (303) 271-9965.

*ISP Report* is the newsletter of record for financial activity in the ISP and CLEC industry. Feel free to send news releases. Stapleton is looking forward to fatherhood beginning September 1998.

# ISP\$ Report Market Index

Symbol	Exchange	Company	Price 4/22/98	Price 5/22/98	Price 6/22/98	Percent Change	Shares (Millions)	Market Capitalization (Millions)
ATHM	NSAD	AtHome	\$33.88	\$37.63	\$ 37.13	-1.33%	118.75	\$ 4,260.12
AOL	NYSE	America Online, Inc.	\$72.75	\$84.63	\$101.13	19.50%	216.20	\$20,971.59
CNCX	NASD	Concentric Network Corp.	\$22.75	\$22.50	\$ 24.75	10.00%	14.18	\$ 350.88
ELNK	NASD	EarthLink Network, Inc.	\$71.75	\$54.13	\$ 72.00	33.01%	12.00	\$ 791.87
IDTC	NASD	IDT Corporation	\$30.91	\$31.00	\$ 25.63	-17.32%	13.96	\$ 349.10
MCOM	OTC	Metricom Inc.	\$11.44	\$10.38	\$ 8.75	-15.70%	18.51	\$ 164.26
MSPG	NASD	Mindspring Enterprises, Inc.	\$79.47	\$58.56	\$ 73.38	25.31%	8.57	\$ 594.68
OZEMY	NASD	OzEmail Ltd.	\$19.38	\$22.25	\$ 19.63	-11.78%	11.54	\$ 213.56
PSIX	NASD	PSINet, Inc.	\$14.94	\$11.38	\$ 12.31	8.17%	51.07	\$ 644.76
RMII	NASD	Rocky Mountain Internet, Inc.	\$ 9.31	\$ 8.75	\$ 8.94	2.17%	7.31	\$ 67.64
WCOM	NASD	WorldCom Inc.	\$43.63	\$45.25	\$ 47.56	5.10%	1,032.09	\$48,573.11
<b>ISP\$ Report Index</b>			<b>\$37.29</b>	<b>\$35.13</b>	<b>\$39.20</b>	<b>11.59%</b>	<b>1,504.18</b>	<b>\$76,981.57</b>

In the drive to positive EBITDA CLECs and ISPs need to:

- 1) Manage the sales and marketing effort. Too little and no growth, too much and SG&A overwhelms the gross margin. Start tracking Revenue/Employee, SG&A/Rev. and Rev/salesperson.
- 2) Automate the customer support operation (i.e. the back office). Trust me, compared to CLECs most ISPs run an immaculate back office. They tend to be more adept at using technology to automate a process. Nevertheless, failure to automate billing, order processing slows growth and balloons SG&A.
- 3) Two step-growth. Take on "off-net" revenue, but get it onto your onto your network as fast as possible. It is okay to bring in a low margin resale customer as long as you have a plan to migrate that traffic onto your operation. Remember the 30 percent gross margin difference between resellers and "smart builds."

The CLEC group is about as homogenous, as the ISP group. In other words, it is not. On a CLEC by CLEC basis, analyze the items above to mark differences in operations and ultimately stock performance. The positive EBITDA announcements of McLeodUSA (Nasdaq-MCLD) of \$0.5 million and ITC-DeltaCom (Nasdaq-ITCD) of \$6.3 million in late April have already nudged a few CLEC prices back up. But don't assume the parties back in full swing. Get under those numbers and see what unique products and strategies are driving them? ♦

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# TUCOWS

Scott Swedorski

## DON'T NEED A WEATHERMAN

Summer is finally here, and millions of us will be hitting the highways (the asphalt kind, not the "info-highway"). No matter what your preferred mode of travel, you are going to want to know the conditions Mother Nature has planned along the way, so before you pack up your gear, log onto the Internet and fire up a weather-checker.

Scott Swedorski is president and founder of TUCOWS, The Ultimate Collection of Winsock Software. He lives in Flint, Michigan with his wife, Vicki and two daughters, Emily and Ashley. After joining the army at the tender age of 17, Scott received his degree in Computer Information Systems from Mott College, and received an Honorable Discharge after eight years service. Scott welcomes input from Internet users and software developers at [tucows@tucows.com](mailto:tucows@tucows.com).

There are a variety of programs that provide real-time weather information over the Internet, for most areas of the world. Now you don't have to wait for the Weather Channel to get around to your area. You can log on and check the forecast, even have a pop-up in your system tray. These applications are especially handy for Internet travelers: you can check for the latest weather at your destination before you go to the airport. Most of the weather applications available on TUCOWS are much faster than their Web-based counterparts. If you check the weather on a regular basis, or if your vacation or business is dependent on a long-range forecast, you can save a lot of time in the long run with these useful utilities.

### Canadian Weather Forecaster

Version Number: 1.1  
Revision Date: January 8, 1997  
File Name: canwea11.zip  
Byte Size: 753,919  
License: Shareware  
NT Compatible: Yes

**CanWeather** is an animated Canadian Weather Forecast program aid that resides in the system tray. The program accesses the National Weather Service site at [ftp.on.doe.ca](ftp://ftp.on.doe.ca) to get automatic two-day forecasts for 24 Canadian cities. You can specify French or English service.

### Tray Temperature

Version Number: 2.1  
Revision Date: April 3, 1998  
File Name: tray21.zip  
Byte Size: 3,006,540  
License: Shareware (30-day trial)  
Cost: \$9.95  
Home Page: [www.futuresolution.com/TrayTemp/](http://www.futuresolution.com/TrayTemp/) [TrayTemp.htm](http://www.futuresolution.com/TrayTemp.htm)  
Also Available: Windows NT Version

**Tray Temperature** puts the current forecast for your specific city, direct from the Weather Channel, into the system tray. You can configure the city, times for checking and even have it put icons in the tray to represent different weather conditions. Tray Temperature supports a comprehensive list of over 1,400 cities throughout the U.S. and 200 international cities.

### WetSock

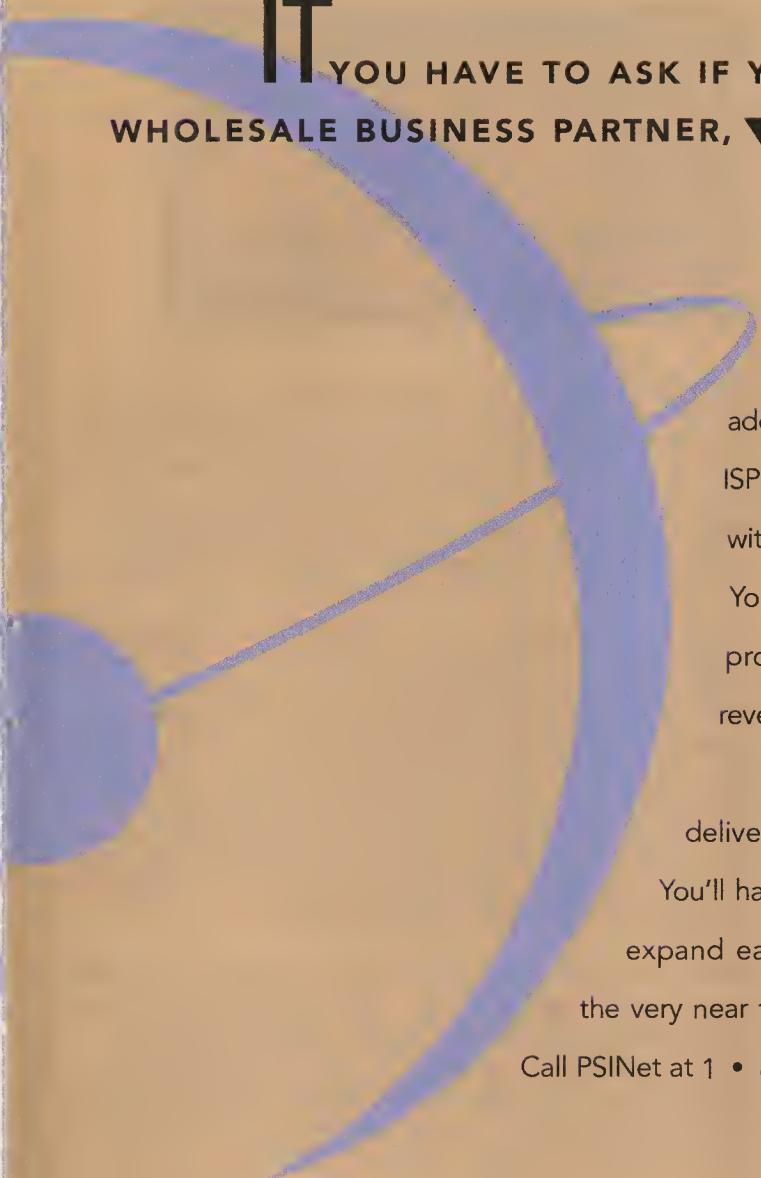
Version Number: 3.7  
Revision Date: April 18, 1998  
File Name: wetsocks.exe  
Byte Size: 937,940  
License: Shareware  
Cost: \$12  
Home Page: [www.locutuscodeware.com/](http://www.locutuscodeware.com/)  
Also Available: Windows NT Version

**WetSock** shows your current weather conditions and forecasts as an icon on the tray notification area of the system taskbar, with icons that change from sunny to cloudy to snowy, depending on the weather in the city you have specified. Designed specially for Windows 95, WetSock will keep you updated about the weather over the Internet without even dialing into your Internet service provider. Wetsock covers a wide range of cities and countries, including Canada, the U.S., Mexico, Europe, Australia and Asia.

### WinWeather

Version Number: 3.0 7/31 Release  
Revision Date: July 31, 1997  
File Name: weath32.exe  
Byte Size: 728,961  
License: Shareware  
HomePage: <http://www.igsnet.com/igs>  
Also Available: Windows 3.x Version  
NT Compatible: Yes

**WinWeather** is an excellent program that shows hourly weather reports and forecasts for a variety of cities. The demonstration version is limited to the United States, but registered users can get international reports. WinWeather distinguishes itself by providing earthquake reports, ski reports, marine forecasts, hurricane advisories, U.S. weather maps, and even weather-cam pictures!



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## Blue Skies

Version Number: 2.0b13  
Revision Date: July 29, 1996  
File Name: BlueSkies2.0b13  
Installer.hqx  
Byte Size: 657,673  
License: Freeware  
Home Page: <http://groundhog.sprl.umich.edu/blueskies.html>  
Author: University of Michigan

**Blue Skies**, a Mac-based program, offers weather and environmental information in an interactive graphical format. If you want to save some hard-drive space, Blue Skies also features a Java version on its home page.

## WeatherTracker

Version Number: 2.3 (Fat)  
Revision Date: February 15, 1998  
File Name: tucows\_weathertracker.hqx  
Byte Size: 962,287  
License: Shareware  
Cost: \$15  
Home Page: [www.weathertracker.com/](http://www.weathertracker.com/)

**WeatherTracker** is one of the best Internet weather programs with international coverage. Designed for Macintosh, WeatherTracker displays temperature, pressure, wind speed and direction, humidity, local conditions, forecasts, near-shore marine data, and climatic information for nearly 1,000 cities across North America and temperature and local conditions for over 100 cities worldwide.

## Elementary

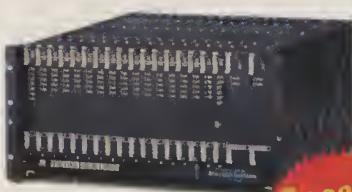
Version Number: 1.9g  
Revision Date: March 2, 1998  
File Name: elem-os2.zip  
Byte Size: 777,238  
License: Shareware  
Home Page: [www.cdc.net/~dupre/](http://www.cdc.net/~dupre/)  
Additional Software Needed: VX-REXX Runtime (401,043)

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**Elementary** is an OS/2 program designed to access and view live weather information over the Internet, including text forecasts, satellite images, and forecast maps for: U.S., Canada, Australia, Asia, Europe, New Zealand, North Africa, United Kingdom, Hawaii, the Pacific Ocean and tide predictions for U.S. coasts. Elementary is speech enabled. If you have BackTalk 1.3 for OS/2, be sure it's running before you retrieve a weather forecast. It will read the current conditions for your U.S. city of choice.

According to Elementary's author, David DuPrie, reliable subscription weather information is available from [www.weatherconcepts.com](http://www.weatherconcepts.com). "I like this service because it is reliable even when the weather is bad and everyone in the U.S. is checking the weather via the Internet. During these times many of the normal weather sites become slow, or don't respond at all. This site never slowed down even during the big hurricane action we had in 1996," he says. This site requires a monthly subscription fee. This is not required to use Elementary; if you want to use the weather images from this site, you must subscribe to the service. There are many other free weather pages available.

By the way, if you are looking for the BEST of the BEST Shareware/Freeware on the Web, check out our list of our Top 10 Downloads, handpicked by the thousands and thousands of users who download from TUCOWS everyday. This list is compiled once a week from download statistics from all of our affiliate locations. Your downloads decide who is on top at <http://idirect.tucows.com/topd.html>. ♦



# DROPS ANOTHER PIN



*A Revolutionary Breakthrough in Integrated Communications*

**By Jack Rickard**

Sprint Telecommunications Corp announced their version of the future of the Internet this week with an initiative they term Integrated On-demand Network or ION. The program, ostensibly five years in the making under project name FastBreak, promises to combine voice, data, fax, video, and any other type of information over a single ordinary copper line to the home or business – simultaneously and on demand.

According to Sprint Vice President and Chief Technology Officer Marty Kaplan, the basic philosophy of the \$2 billion network redesign was to have feature richness at the edge of the network with simplicity and efficiency at the core. And this led them to move toward a distributed ATM network architecture. ION will actually deliver ATM (asynchronous transfer mode) networking to the home.

The new network is based on three basic components: the SONET transport layer, a new Sprint technology to translate between circuit switched voice networks and ATM, and the ION delivery mechanism to go the last mile.

## TRANSPORT LAYER

Sprint dropped their first pin with a fiber optic network upgrade several years ago that upped the ante in voice quality that forced other carriers to match in order to avoid losing market share. Today, some 87 percent of all Sprint services are delivered over a national SONET (Synchronous Optical NETwork) ring. According to Kaplan, 90 percent of services will go on SONET before the end of the year and they will accomplish 100 percent some time in the first half of 1999.

Sprint has also been very aggressive in adopting the new Wave Division Multiplexing (WDM) technologies. WDM basically replaces the electronics in a fiber system to increase bandwidth dramatically over the existing fiber cables. It is based on the premise that if you separate the various frequencies of light (colors) transmitted over a single fiber strand, and modulate each frequency separately, you can achieve much higher bandwidths. The ultimate limit on bandwidth is currently the number of discrete colors (channels/windows/frequencies) that can be differentiated.

According to Kaplan, Sprint currently has 70 percent of their network under WDM with 90 percent scheduled by the third quarter of this year. And the current technology offers some 40 discrete channels that cumulatively provide some 100 Gigabits of capacity on any one optical fiber. He thinks this is also extremely scalable, and they are already looking at equipment to bump the capacity to 256 channels.

Basically, the company could handle ALL the voice traffic in the country, carried by all long-distance carriers, on a single optical fiber strand.

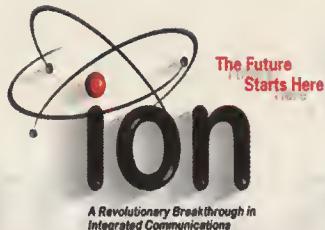
## DISTRIBUTED ATM NETWORK

Layered on top of the national SONET ring network is a distributed ATM network. Most national Internet backbone operators use ATM to switch data flows between major metropolitan areas. ATM provides an amazing amount of flexibility to handle different data types easily. Under Sprint's JCS 2000 initiative, the company developed a patented means of trans-

lating from the standard TDM voice network format to ATM and back to TDM. In theory, this would allow Sprint to interface their national ATM network to the circuit switched long distance voice networks of other carriers. But on the Sprint network, carriage efficiency gains of some 70 percent would be realized in transporting the calls nationally over the ATM network, instead of through traditional trunks and switches. The company has applied for over 100 patents on the various technologies that are part of ION

### THE LAST MILE

The latest addition involves plans to use existing copper wires into businesses and homes to extend the ATM network to the customer location. This is done over xDSL (digital subscriber line) technologies. The result is a kind of ATM over xDSL that terminates in a customer premise box that will allow you to plug in your Internet IP router, PBX, fax machine, voice phone, etc. By putting some reasonably smart software in the box, the network can reallocate bandwidth on demand for video applications,



voice, data, or anything else – simultaneously. But the magic is not so much in using xDSL for transport across the final mile, as it is extending ATM to the site – allowing for a lot of bandwidth tricks at speeds up to 6 Mbps downstream currently, and 1.5 Mbps upstream. And the company, already a big player in the wireless PCS arena, is looking seriously at wireless delivery as well.

The primary vendor for building the box is Cisco Systems. A second source for the boxes has not been named, but Sprint has been playing quite a bit with some Nortel equipment. The box will contain software from Sprint and Bellcore, and appears to be somewhat proprietary.

Aside from various dynamic bandwidth control and quality of service applica-

tions that can be deployed with this, one of the tricks is the flexibility with which it can be managed across the networks. The servers do not precisely have to be located nearby. And almost any billing scheme could be deployed. The most likely is to charge by actual bandwidth use, and several publications have announced that Sprint has plans to charge by the data packet or volume. Kaplan insists that the billing question is still up in the air and no decisions have yet been made on that. Final pricing will be announced during the third quarter of this year as they begin rolling out the product to large businesses in seven metropolitan areas. Smaller businesses will get the product during the first half of 1999 with consumers beginning to get the connection in the latter half of 1999. ♦

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-EVERETT DIRKSEN

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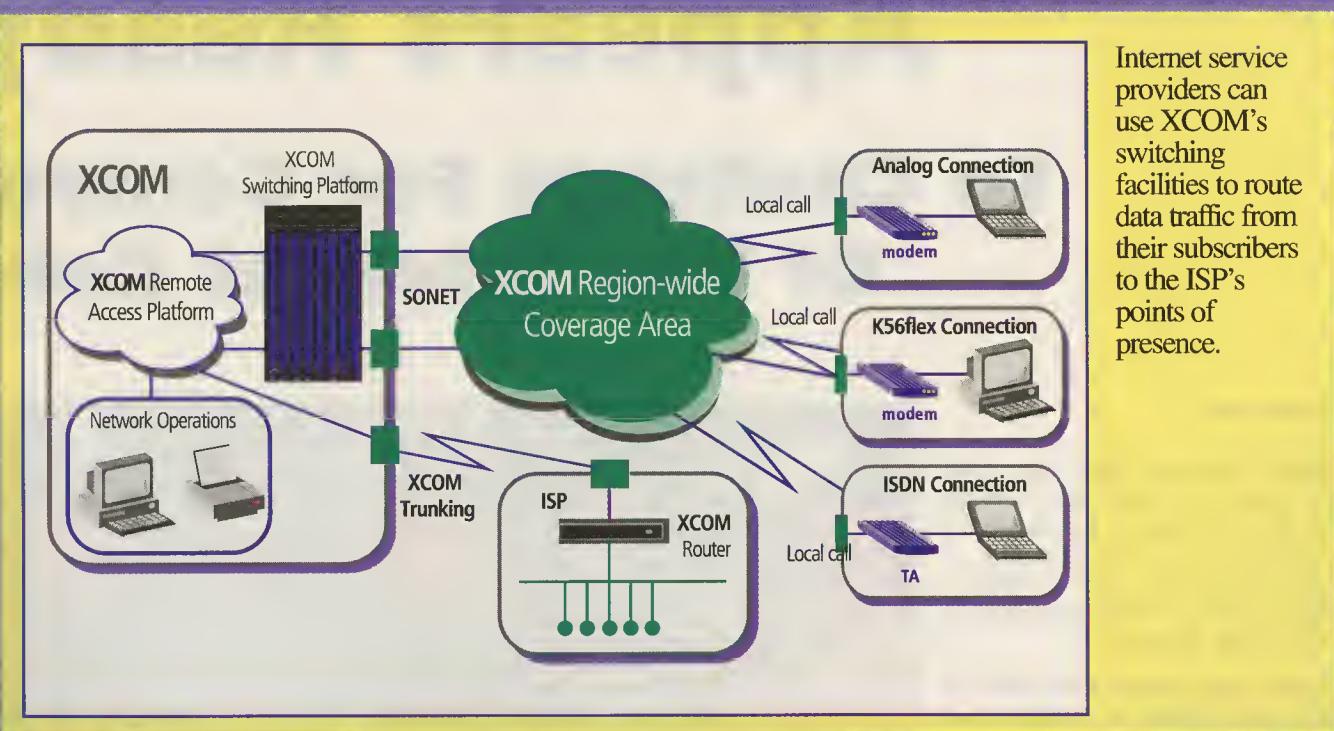
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# Juniper Team Appears Ready

## To Challenge For Control Of The Internet Core

By Bill McCarthy

Juniper Networks looks like a company that will give Cisco Systems a run for the money in Internet routing. Juniper has lots of money — money that reflects a faith in its team to come up with a better way to route the core of the Internet.

And what does Juniper have faith in? MPLS, also known as multiprotocol label swapping.

Three system and IP architects founded Juniper Networks in February 1996 in Mountain View, California, with a fervent belief in MPLS religion. Since then Juniper has drawn managers and engineers from companies like Bay Networks, Cisco Systems, Silicon Graphics, StrataCom, Sun Microsystems, 3Com, and Xerox. They brought in CEO Scott Kriens in September 1996, and since then the momentum has been building in an equation that fits Moore's Law.

### THE MONEY

That momentum has drawn some of the largest players on the Net to the MPLS faith, or at least to the point of making sure that they are seen in the church — just in case. Look who else has the MPLS religion: AT&T Ventures, Ericsson Inc., Lucent Technologies, Nortel (Northern Telecom), the Siemens/Newbridge alliance, 3Com Corporation, The Anschutz Family Investment Company LLC and WorldCom Inc.'s subsidiary, UUNET Technologies, Inc. The big boys have poured \$62 million into Juniper based solely on its potential — although software and hardware products should be making an appearance this summer. Juniper also formed a strategic technology relationship with IBM.

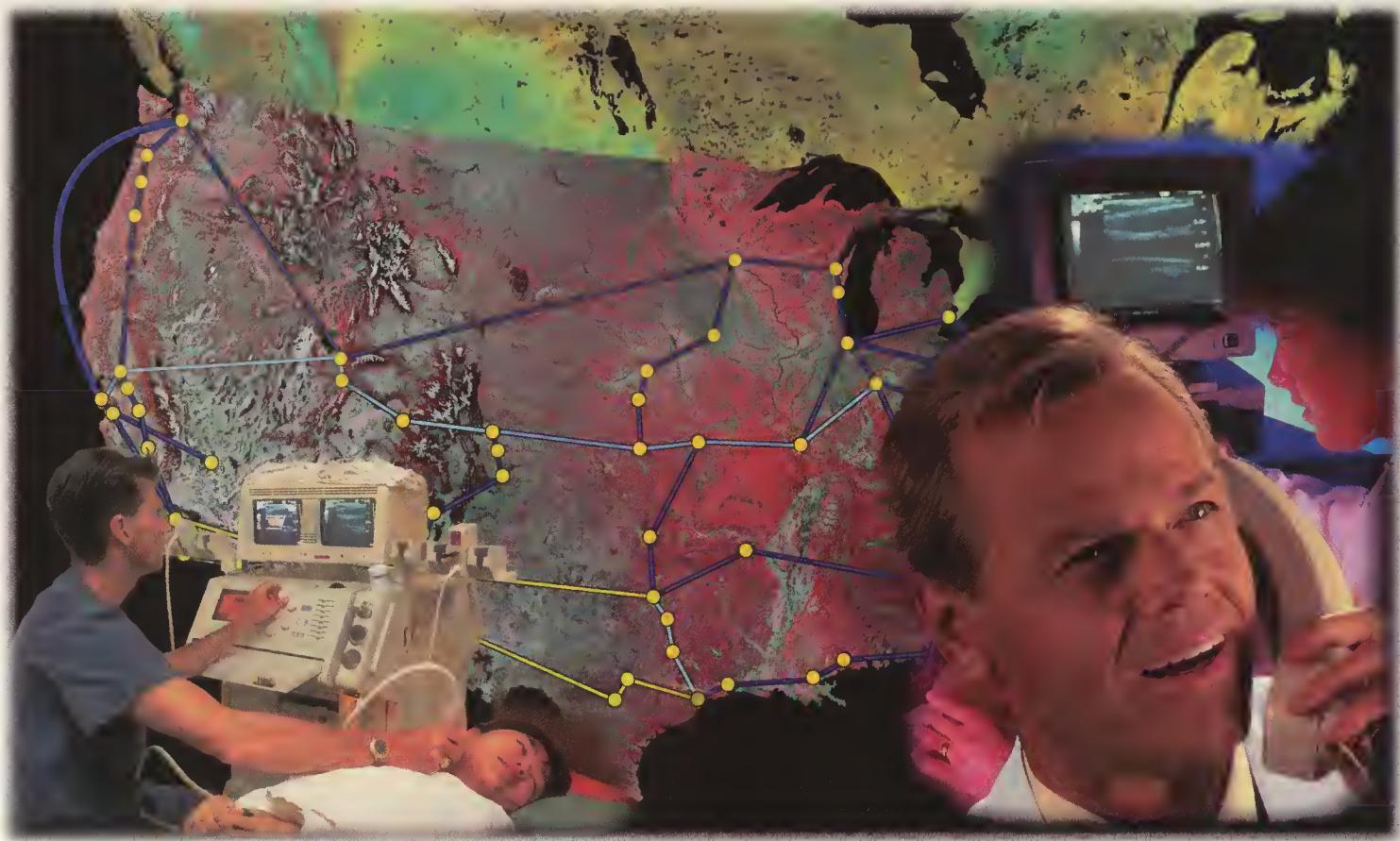
If you look at Juniper's line up and the technology, while taking into account where the Internet must go to deliver the



Engineering — (left to right) Pradeep Sindhu, Dennis Ferguson, Tony Li, Bjorn Liencres, Peter Wexler

promised services of tomorrow, you may find yourself at the alter of MPLS as well.

The Anschutz Family Investment Company LLC, for example, invested \$2.5 million in Juniper Networks. The Juniper investment joins other investments by Anschutz in technology companies, including a majority stake in Qwest Communications International Inc. Qwest is installing huge pipes for its domestic network to connect 125 cities in the coming year. Qwest says that its capacity represents about 80 percent of the data and voice traffic originating in the United States plus planned network extensions 1,400 miles into Mexico. But huge investments in fiber capacity can, of course, be wasted without high-speed routers. "At Qwest, we're deploying OC-192 technology to transport high capacity data traffic," said Joseph P. Nacchio, president and CEO of Qwest, in a press release. "It's encouraging to see companies, like Juniper, accelerating the development of router technology that can originate and terminate this traffic at the highest possible speeds."



A main benefit of MPLS will be the capability to send priority packets across the Internet (such as real-time medical imaging — depicted in this photo illustration)

In addition to ownership interests, the participating companies have the opportunity to integrate Juniper's technology with their existing product lines and services worldwide. AT&T Ventures, for example, specifically invests in information technology and service-enabling companies in emerging growth markets, and helps companies that it believes will eventually help AT&T. Obviously UUNET and Ericsson, which is also making its own MPLS routers, have obvious stakes in the future of the technology, as well.

## THE TEAM

Juniper's founders all come from the industrial side of the Net; they're techies. Chief Technical Officer Pradeep Sindhu, a principal scientist at Xerox PARC, was a key architect of Sun's first high performance multiprocessor systems. Sindhu's research at PARC focused on design tools for VLSI and high-speed interconnects for shared-memory multiprocessors. That research led Sun Microsystems and Xerox to develop Sun's first high-performance multiprocessor system family, including the SS1000, SS2000, SS1000E, and SS2000E. Sindhu, who has a Ph.D. in Computer Science from Carnegie Mellon University, played key roles in the architecture, design, and development of those machines.

The other two have impressive credentials as well.

Dennis Ferguson comes from MCI. While working for MCI and Advanced Network Services, Ferguson worked in the development of routers and the deployment of router technology in

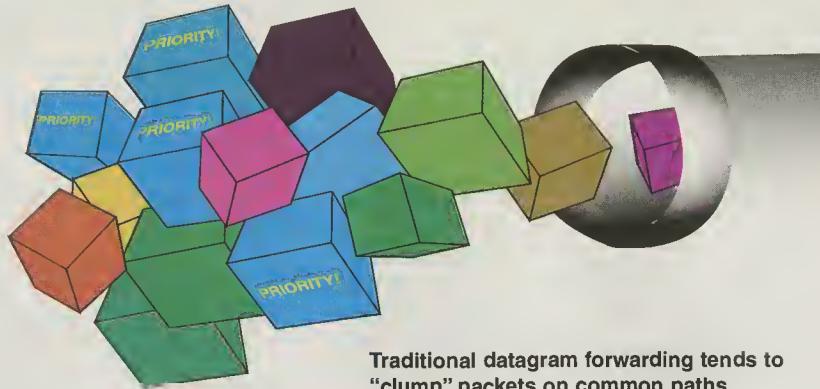
large Internet backbone networks. At MCI, Ferguson implemented the vBNS research network and planned MCI's commercial Internet service. Ferguson also developed significant enhancements to the GateD suite of routing protocols at Advanced Networks and Services, and developed routers for the original national backbone for Canada — CA\*net.

Bjorn Liencres was hardware technical lead at Sun Microsystems and an architect of Sun's Ultra Enterprise family of servers. At Sun, Liencres also served as Application Specific Integrated Circuits (ASIC) technical lead on the SC2000 and the SS1000. Prior to Sun, Liencres worked for IBM, and he has 10 patents filed or granted. (By the way, IBM is providing custom ASICs for Juniper's new class of Internet backbone devices as part of a strategic technology alliance. Under the agreement, IBM is custom designing the chips for Juniper's products, integrating Juniper's software and IBM silicon logic).

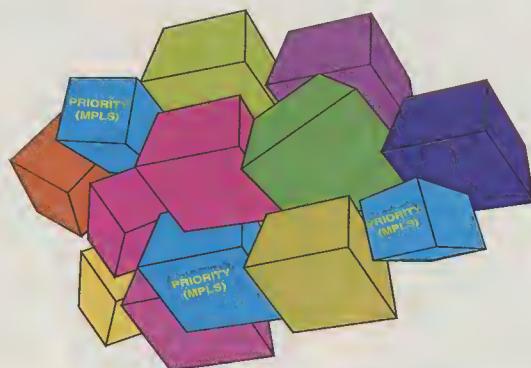
The three founders have surrounded themselves with some of the top managers available. Chairman, President and CEO Scott Kriens was a founder of StrataCom and spent 10 years as a vice president of sales and operations, bringing in the first sales of that company. Some give Kriens credit for establishing the first Frame Relay and ATM networks in the industry. Kriens also worked for Tandem Computers.

Chief Financial Officer Marcel Gani served as vice president and chief financial officer of NVIDIA Corporation, Grand Junction Networks, Primary Access and NeXT Computer, as well as doing

## Multiprotocol Label Switching/Traffic Control



Traditional datagram forwarding tends to "clump" packets on common paths



Label based forwarding (MPLS) will allow complex mapping from IP to forward equivalence class

12 years at Intel Corporation. Vice President of Engineering Peter Wexler jumped from Bay Networks where he was a vice president of engineering. Both Joe Furgerson, director of marketing at Juniper, and Gary Heidenreich, vice president of operations, are from 3Com. Steven Haley is vice president of sales and jumped to Juniper from Cisco and StrataCom.

### THE TECHNOLOGY

High-performance routers are sometimes called Layer 3 switches, and the first generation of Layer 3 switches used proprietary technology, so the Internet Engineering Task Force formed the MPLS working group to formulate the Multiprotocol Label Switching standard. That will allow the devices to interoperate at some point, and the MPLS standard may be issued sometime in 1999. In the technology, labels are associated with specific streams of data and forwarding is simplified by the use of short fixed length labels to identify streams rather than each packet.

In its simplest form, MPLS is an attempt to blend the best of the IP protocol with the cell switching technology used in the ATM protocol. In fact, early implementations created virtual circuits on ATM networks for sessions of TCP/IP packets. The machines calculated only the route for the first packet in a given transmission, sending the rest of the packets along the same path. MPLS retains the concept of routing only the first packet in a stream or session, but it can do away with the need to create numerous virtual circuits as it does within ATM implementations. ATM's small cell size of 48 bytes also eats unnecessary bandwidth by increasing the header to payload

ratio. So it is inefficient for many applications. Instead, MPLS attaches labels containing condensed forwarding information to packets, so routers will know the next hop.

With MPLS, only the edge routers that are connected to other ISPs' networks need full routing tables and only the routers on the edge of the network need to calculate routes. Currently, the Internet relies on each IP datagram being routed separately with complex processing at each hop. The IP routing architecture sees a network as a collection of routing domains. Within a domain, routing is provided through interior routing — OSPF — while routing across domains is provided through exterior routing — BGP. However, all routers within domains that carry traffic transiting a network have to maintain information provided by both interior routing and exterior routing. The amount of information is significant and uses resources and time.

Tag switching allows separation of interior and exterior routing. With tag switching only tag switches at the border of a domain need routing information provided by exterior routing — all other switches within the domain only need information about the interior of the network. That reduces the load on interior switches, and shortens routing convergence time. To support this functionality, tag switching allows a packet to carry a set of tags within a stack, and that information can be used in a variety of ways. Label swapping allows packet forwarding to be based on a match for a short label for a stream of packets. Internal routers and switches examine the MPLS label, which gives the address of the next edge router the packet must travel to. By cutting down on the number of route calculations, overall traffic capacities and speed is supposed to increase. And labels may also be used to deliver quality of ser-

vice by setting priorities for packets, so that guaranteed levels of bandwidth can be given as needed.

It is also possible to bind a tag not just to a single route, but to a group of routes, creating many-to-one mapping between routes and tags. Tags can be carried in a number of ways, including as a small header inserted between the Layer 2 and the network layer headers; as part of the Layer 2 header, if the Layer 2 header provides adequate semantics as in Frame Relay, or ATM; or as part of the network layer header.

Tag switching consists of forwarding and control. The forwarding component uses the tag information carried by packets and the tag forwarding information maintained by a tag switch to perform packet forwarding. The control component is responsible for maintaining correct tag forwarding information among a group of inter-connected tag switches. Segregating control and forwarding into separate components promotes modularity or greater flexibility in making adjustments to accommodate new requirements.

It is possible to implement tag switching over virtually any media type including point-to-point links, multi-access links, and ATM. The tag forwarding component is network layer independent. Use of control components specific to a particular network layer protocol enables the use of tag switching with different network layer protocols. In some cases MPLS may make direct use of underlying Layer 2 forwarding, such as is provided by ATM or Frame Relay equipment. Labels may be distributed to allow nodes to determine which labels to use for specific streams or may use some sort of control exchange, be piggybacked on a routing protocol, or both.

A large number of vendors are involved in developing MPLS, including the usual suspects: Cisco Systems, 3Com, Bay and Ascend Communications. And we are bound to hear a significant debate about the IETF standard and which product is faster, better, and so on. But Cisco is still the company to beat with most ISPs and backbone providers using Cisco products at the core of their networks. And it will be difficult to unseat the champion. If a company is supplying its customers with a product that works based on products that work from a vendor, why change?

But then again this is the Internet, where Moore's Law — the rule of 18 months to obsolescence — may even be behind the time curve, and competition and cooperation at times seem indistinguishable, so a number of the big players seem to need to hedge their bets. They look at Juniper Network's team and the technology, and they have a little faith — \$62 million worth.♦

## **ISPs: LOOKING FOR A REMOTE ACCESS SERVER THAT IS FASTER, MORE RELIABLE, & LESS EXPENSIVE?**

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The PowerRack also has the standard feature list: dial-in/dial-out access, a powerful RISC CPU, Ethernet connectors, ISDN capability, PPP, SLIP, CSLIP, *bootp*, *rlogin*, *telnet*, reverse *telnet*, PAP/CHAP authentication, RADIUS II, RIP II, SNMP MIB II, subnet routing, IPCP DNS exts. for Windows 95, and IP filtering.

PowerRack user and Internet Service Provider Michael Behrens, of InterNet Kingston (mbehrens@kingston.net), commented, "The PowerRack is an attractive product, both in its ability to do the job well and to do the job... cost effectively. Port for port costs are significantly lower than the Livingston Portmaster. The product lives up to its name... performance under load is exceptional! The PowerRack also offers a significant feature for feature comparison against the available competition (i.e. Livingston Portmaster). And, technical support was extremely knowledgeable and responsive."



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Robert Cannon is the founder of the Internet Telecommunications Project. He is a contributing editor to the *Law Journal Extra's Internet Advertising and Marketing Web site*. His articles have appeared in the *Federal Communications Law Journal*, the *Federal Communications Bar Association Newsletter*, the *Commercial Internet eXchange Newsletter*, *ISP Report*, and *OnTheInternet* (the magazine of the Internet Society). Cannon recently spoke at Computers Freedom and Privacy 1998. Cannon is also co-chair of the Online Telecommunications Committee of the Federal Communications Bar Association, was the FCBA's Web master from 1995 to 1997, and is the owner of the listserv CYBERT-ELECOM-L. He is a graduate of the American University Law School, has a master's degree from Yale University, and a bachelor's degree from Oberlin College.

# LEGAL DEVELOPMENTS

by Robert Cannon

## FCC EXAMINES OBSTACLES TO ADVANCE TELECOMMUNICATIONS

Internet service providers are doing a lousy job. Vast portions of the United States are without Internet service and it is your fault. There is insufficient bandwidth available to consumers — and it is your fault. The Internet backbone is congested and slow — and it is your fault. By the way, the extinction of the dinosaurs was probably your fault as well.

The solutions to all of these woes? Deregulate incumbent telephone companies and allow them into the long-distance market! That is, if you believed the arguments of the incumbent telephone companies. In the past few months, telephone companies have been filing a series of petitions with the Federal Communications Commission pursuant to Section 706 of the Telecommunications Act of 1996. The incumbent telephone companies (incumbent local exchange carriers or ILECs) have argued for regulatory relief using this section, claiming that there is insufficient bandwidth out there, insufficient access to that neat thing known as the Internet, and therefore they should be freed of cumbersome regulations.

### SECTION 706 OF THE TELECOMMUNICATIONS ACT

Section 706 is a curious provision in the Telecommunications Act. It states that the FCC shall encourage the deployment of advanced telecommunications services to all Americans. To this end, the FCC shall initiate, no later than August 8, 1998, a Notice of Inquiry comment proceeding to determine the availability of advanced communications to all Americans. If the FCC determines that advanced telecommunications are not being deployed to all Americans in a reasonable and timely fashion, the FCC shall "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."

This should not be confused with universal service. While similar in intent, this is not the federal program to subsidize Internet access to schools and libraries. Designed to come at the end of process of implementing the Telecommunications Act, it gives the FCC authority to look at the landscape and to see whether anything is amiss. If the FCC is dissatisfied, section 706 gives the FCC broad authority to act. To act, however, the FCC must first gather comments from the industry about what is wrong with the world. The FCC will likely initiate the proceeding in the beginning of August.

This is an important proceeding for the ISP industry.

While ISPs are not directly regulated by the FCC, there is this periphery area of the Internet, where the Net meets the telephone network, that is steeped in regulation. The success of ISPs depends, in part, on their ability to acquire telecommunications services from telephone carriers. ISPs cannot take on new subscribers where they cannot get lines from telcos. ISPs cannot provide high-speed access where telcos refuse to make high-speed lines accessible (the historic failure of telcos to provide ISDN lines is a good example). And where ISPs decide to bypass the telco and build it themselves, becoming CLECs with interconnection rights, their efforts are frustrated by telcos that thwart interconnection negotiations with unreasonable collocation demands or refusals to pay reciprocal compensation.

The Section 706 proceeding will be an opportunity for the Internet access industry to explain to the FCC its frustrations in acquiring telecommunications services. It is an opportunity to explain any obstacles access providers experience by such simple things as an inability to get lines from the telco. Some have suggested that the proceeding should also review the peering arrangements of the Internet backbone providers. It will be an opportunity to tell the FCC what is wrong (and not wrong) with the world, and what should be done about it.

### THE ILECs' PETITIONS

Clearly the ILECs believe that there is something wrong with the world. US West, Ameritech, and Bell Atlantic stumbled upon Section 706 and decided that it would be a wonderful way to once again advance their views. They each filed petitions with the FCC this Spring, citing Section 706 and arguing that Americans are not receiving advanced telecommunications fast enough. Their conclusion, quite naturally, was that they ought to be deregulated and permitted to fill the need. The Alliance for Public Technology, a group financed by US West, Ameritech, and Bell Atlantic, soon joined the fray by filing a petition demanding the immediate initiation of the Section 706 proceeding, and requesting relief similar to that asked for by the ILECs.

In their petitions, the ILECs argued for the removal of the regulatory restraints. The Telecommunications Act of 1996 requires ILECs to provide access to the networks that they created while monopolies to the new entrants, CLECs. Until the monopolies begin to go away and competition is established, ILECs are not permitted to go into the lucrative long-distance market. Not pleased with these restrictions, ILECs want an end to this. They want to be able to build long-distance data networks capable of carrying voice or data

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traffic, and they want the elimination of the requirements that they must provide their networks on an unbundled basis to their competitors. And while the FCC is at it, the Alliance for Public Technology wants to end the "free ride" of ISPs. In other words, they, once again, are requesting that access charges be imposed on the Internet.

Why would this help provide advanced telecommunications to all Americans? According to the ILECs, it will help respond to the congested data backbones which lack inadequate investment, and it will help to bring high-speed access to residential customers. Presently, the ILECs argue, they lack the incentive to invest in advanced telecommunications. If they invest and build services, they must provide those services, unbundled, to their competitors. In this situation, they argue, they have no incentive to build. Thus, if ILECs make the investment, only ILECs should reap the benefits. If ILECs retain sole control of any infrastructure they build, this, they argue, will bring advanced telecommunications to Americans.

There are many things wrong with this picture. One area of success has been the Internet backbone. Contrary to the ILECs' characterizations of backbone congestion and lack of investment, CIX and ISP/C pointed out in their responses to the ILEC petitions that the capacity of the Internet backbone doubles every four to six months, Qwest is currently constructing 16,000 miles of network, Sprint last year increased its bandwidth 400 percent, UUNET last year made a \$300 million investment in its network infrastructure, and so on. Thus, as CIX states, for the ILECs "to insinuate that adequate investment in the backbones is not occurring is nonsensical." The backbone is expanding at an astounding rate. There is no backbone crisis that would justify premature entry into long distance by ILECs.

The problem is the last mile to the residential customer (known as the local loop). The problem is that residential customers are trapped in the world of 28.8 or 56 Kbps. The real question is how do we get bandwidth to the residential customer. History has proven that ILECs are resistant to building out high bandwidth. The ISDN fiasco is proof of that. The same is true for DSL lines. Prior to the requirement to provide interconnection to competitors, ILECs responded to the demand for DSL by removing DSL tariffs. The monopolistic position of ILECs has only encouraged them to maintain the status quo and reap profits from an outdated telephone network.

If ILECs lack the incentive to provide advance telecommunications services to residential customers, then those with the incentive should be permitted to do so. The Telecommunications Act of 1996 is designed to introduce competition by breaking up old monopolies. Advanced telecommunications would be promoted if competition in the marketplace is realized. CIX and the ISP/C argued that instead of eliminating the obligations of ILECs to unbundle and interconnect their networks, those obligations ought to be strengthened. Requirements such as "Open Network Architecture," should be strengthened, permitting ISPs access to unbundled telephone network elements by ISPs so that they can provide high-bandwidth access where ILECs lack the "incentive."

The alternative is that ILECs will leverage their dominant position in the market to preclude true competition. ILECs can bundle their regulated telco services with their relatively unregulated information services in ways that ISPs cannot. ILECs can offer free Internet access if consumers acquire a regulated DSL line; ISPs cannot. This fundamentally advantages ILECs.

Again, if ILECs are not required to provide access to their network elements and are not required to permit collocation, the ILECs are strongly advantaged over the customers they can service. As CIX points out, if a DSL line has a range of only 18,000 feet, then an ILEC can reach all customers within 18,000 of its office. But if the ISP (or CLEC) can only locate itself within 3,000 feet of the office, the ISP can only reach customers within 15,000 feet of the telephone office. Thus, ILECs will be able to leverage their dominant positions to reach more customers. Deregulation of ILECs is not prudent and is not necessary. ISPs have the incentive to provide advance services; what they need is a real opportunity.

Finally, the Alliance for Public Technology calls for the end of the ISP "free ride." In other words, APT once again calls for the imposition of access charges, commonly known as "the modem tax," on ISPs. You would think that they would grow tired of bringing up an argument that has been rejected by the FCC so many times. But they didn't. And so this erroneous argument must be rejected once again.

There is no free ride. ISPs are not subsidized by lack of some access charge. The telcos, in their last two annual reports, reported substantial profits based on Internet usage. This is attributable to the fact that more people are leasing secondary residential lines for data traffic. Telcos profit from this increased consumption of their services, including through the receipt of additional flat-rate access charges on each of those lines. In addition, ISPs lease lines to reach their customers. They lease a lot of lines. That is a lot of service consumption from which telcos garner revenue. And all of those business lines have business flat-rate access charges. Or, perhaps ISPs lease trunked lines to reach their customers. These luxury services are embedded with substantial fees, once again profiting the telcos. Finally, ISPs lease luxury high-speed lines to connect to each other. More embedded costs profiting telcos. The FCC clearly concluded in its April Report to Congress that instead of taking money away from the support of the network, increased Internet use encourages increased consumption of telecommunications services, increasing the money available to support the network and increasing the profits of the ILECs.

ISPs do not pay the metered access charge that long-distance telephone companies pay. This is so even though some Internet transmissions are long distanced. It should be noted, however, the long-distance data transmissions are significantly different than long-distance phone calls. Calling a friend in Israel and having that person read the newspaper to you is wholly different than calling up the Israeli newspaper Web site and reading it. One involves a transmission of 20 minutes, the other of a few seconds. One involves infrastructure dedicated to that transmission the entire time the phone is off hook; the other uses packet-switch technology, which permits multiple users to use the same capacity. Any comparison between a long-distance phone call and a long-distance transmission over the Internet is strained at best.

There is no doubt that telcos have struggled with the tremendous increase in demand for their services, but it is unusual in the history of commerce to have an industry whine so much about increased consumption of services leading to increased profits. We do not need new access charges to bring advanced telecommunications services to all Americans. What we need is assurances that ISPs can lease the telecommunications services they increasingly require, and thereby pay increased access charges, contribute more to the Universal Service Fund, and enlarge the profits of the ILECs even further.



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#### THE FCC WANTS YOU!

The ILECs and APT may honestly believe that the way to provide advanced telecommunications to all Americans is through ILECs. The experience of the Internet industry has generally proven otherwise. The ILECs took the opportunity and fired the first shot in the coming Section 706 policy battle. Now it is the Internet access industry's turn. The problem is not the Internet backbone. The problem is access to residential customers. This is in the control of the ILECs. This must change.

The FCC has indicated a frustration that it has received insufficient input from ISPs. When ISP/C showed up in Washington last spring, they were treated like visiting dignitaries. The FCC needs to hear your voice and the Section 706 proceeding will once again prove to be an opportune time to speak. The question is whether advanced telecommunications services are being provided to all Americans in a reasonable and timely manner. What has kept you from providing greater bandwidth to more customers? ♦

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# MANNING THE WIRES

by Ric Manning

## NET GAMING SERVICES COMPETE FOR ATTENTION AND RESPECT

It was the loudest booth at the loudest trade show.

Every five minutes the colored lights above the GameStorm display would begin to pulsate.

Smoke would billow out from the underside of a giant globe. Then came the deep, primordial rumble that set your teeth on edge followed by the high-pitched screech of a giant creature preparing to attack.

Godzilla was once again announcing his arrival.

Mark Prindel paused in mid-sentence, winced at the erupting thunder and glanced across the aisle at the people manning the booth of a well-known computer game magazine. They didn't look happy. "They hate us," said Prindel. "I'll be surprised if they ever give us any more coverage."

The GameStorm people unleashed Godzilla at E3, the big computer and video game trade show, in part to promote its new online multiplayer game based on the summer's big special effects movie. But at the same time the whole fledgling Internet gaming industry was trying to tell the world that it had arrived.

Jupiter Communications, which tracks trends in the high-tech world, predicts that online gaming could become a \$1 billion market within the next few years. That potential payoff has a host of companies, from small start-ups to behemoths like Microsoft, staking a claim in online gaming space.

Almost every new action or strategy game now comes with an option for playing head-to-head online or as part of a group. And online gaming sites are experimenting with a variety of pricing plans ranging from free games to \$19.95 a month for access to a single game.

But online gaming is still a long way from the pot of gold that developers are aiming for.

"There's a long way down the road before we can say we have a mass audience," said Chris Holden, CEO of Kesmai Corp. Kesmai is one of the oldest online gaming companies with games on America Online and on GameStorm's Web site.

"Until the day comes when we can sell 2 million games in two months like Nintendo, we're pipsqueaks," said Ned Lerner, president and CEO of Multitude.

One of the challenges for online gaming companies is figuring out how to attract paying customers in an environment where many online games are free. One service might charge \$10 a month to play backgammon and a number of other games while another site might provide access to a collection of board games for free.

"We are fighting the perception that all online games are essentially the same and that they are free," said Kesmai's Holden.

Neil Harris, executive vice president of Simutronics, said his company tried establishing relationships with Internet service providers. "That sounded like a good distribution model," Harris said. The ISPs have a billing relationship with their subscribers and could collect fees for access to gaming centers.

But most ISPs don't have the promotional muscle to match AOL or even a software publisher. "We've had relationships with ISPs but it hasn't been very profitable," he said. "AOL was a great place to focus. It was good while it lasted."

Many of the best games require users to download and install software on their computers. And the most attractive games are those that make gaming part of a social event.

"We focus on community," said Michelle Greene, director of marketing for VR-1. "We try to find ways to get people talking."

"The joy of Internet gaming is being able to talk to each other," said Holden. But sometimes that can be a problem. "We had a company doing a cable modem trial ask us for a copy of Cyberstrike without communication. They were worried about middle age guys hitting on young girls."

Here's a look at some of the major online gaming services that were making noise at E3 and what they were shouting about:

### GAMESTORM ([www.gamestorm.com](http://www.gamestorm.com))

GameStorm provides a central launching pad for games developed by four developers. Players are charged \$9.95 a month for access to dozens of games ranging from card and board games to graphic action games.

The latest additions include battle games based on the "Aliens," "Starship Troopers" and "Godzilla" movies. But the most popular game is Air Warriors, an airborne combat game featuring World War II bombers and fighter planes.

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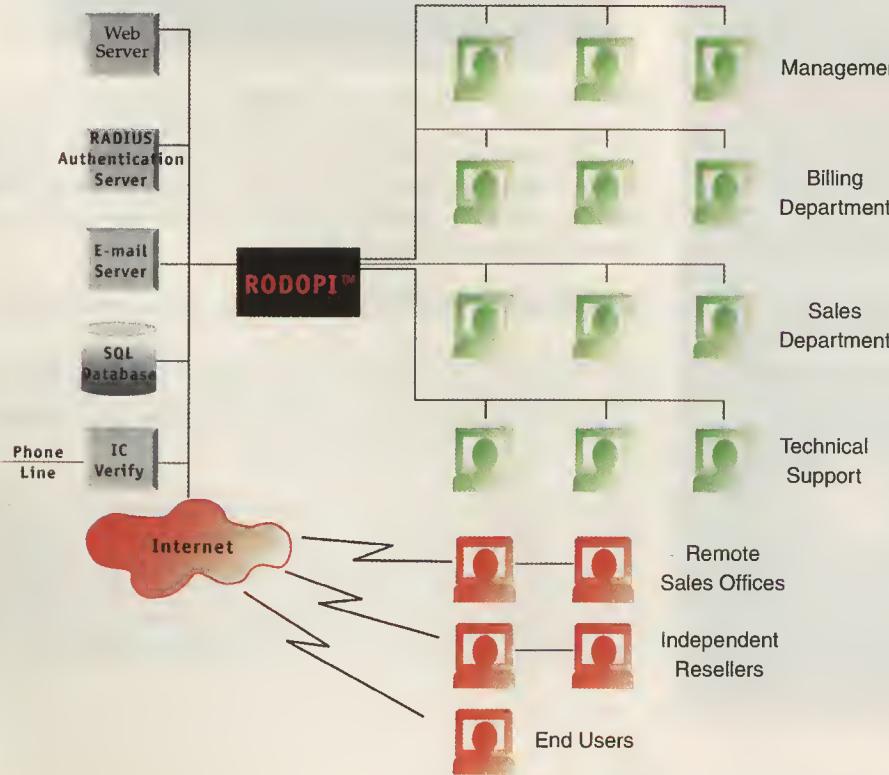
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## INTERNET GAMING ZONE ([www.zone.com](http://www.zone.com))

Microsoft's online game center will be home to the multiplayer versions of several of the company's new games. Age of Empires II and Asheron's Call are fantasy role-playing games that incorporate cooperation and combat over a large-scale virtual world.

The Zone also offers free card and board games and an option that will match two players for one-to-one competition. Owners of retail games such as Quake II, Outlaws, Scrabble and Microsoft Golf can play online for free. Premium games such as Microsoft's Urban Assault and VR-1's UltraCorps carry daily or monthly fees.

## VR-1 ([www.vr1.com](http://www.vr1.com))

VR-1 is a Colorado-based company that develops games for a variety of online delivery methods. Games under development include The S.A.R.A.C. Project, a futuristic submarine combat

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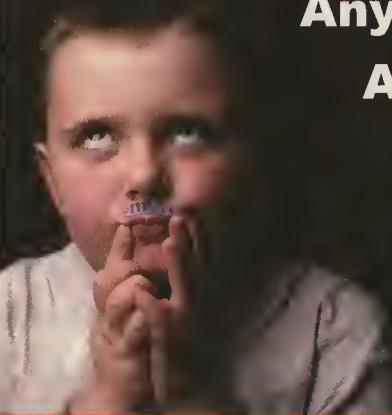
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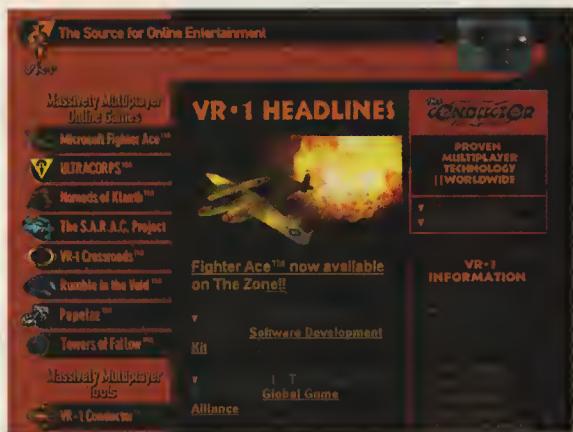
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game; Nomads of Klanth, a fantasy combat game that incorporates humans, elves, dwarves and "the undead"; and UltraCorps, a turn-based strategy game that lets thousands of players compete for control of the universe.

The company has also released a software developer's kit for VR-1 Conductor, a technology that allows developers to build large-scale, multiplayer games. The technology was used to power online-only games such as Microsoft Fighter Ace.

## WORLD OPPONENT NETWORK ([www.won.net](http://www.won.net))

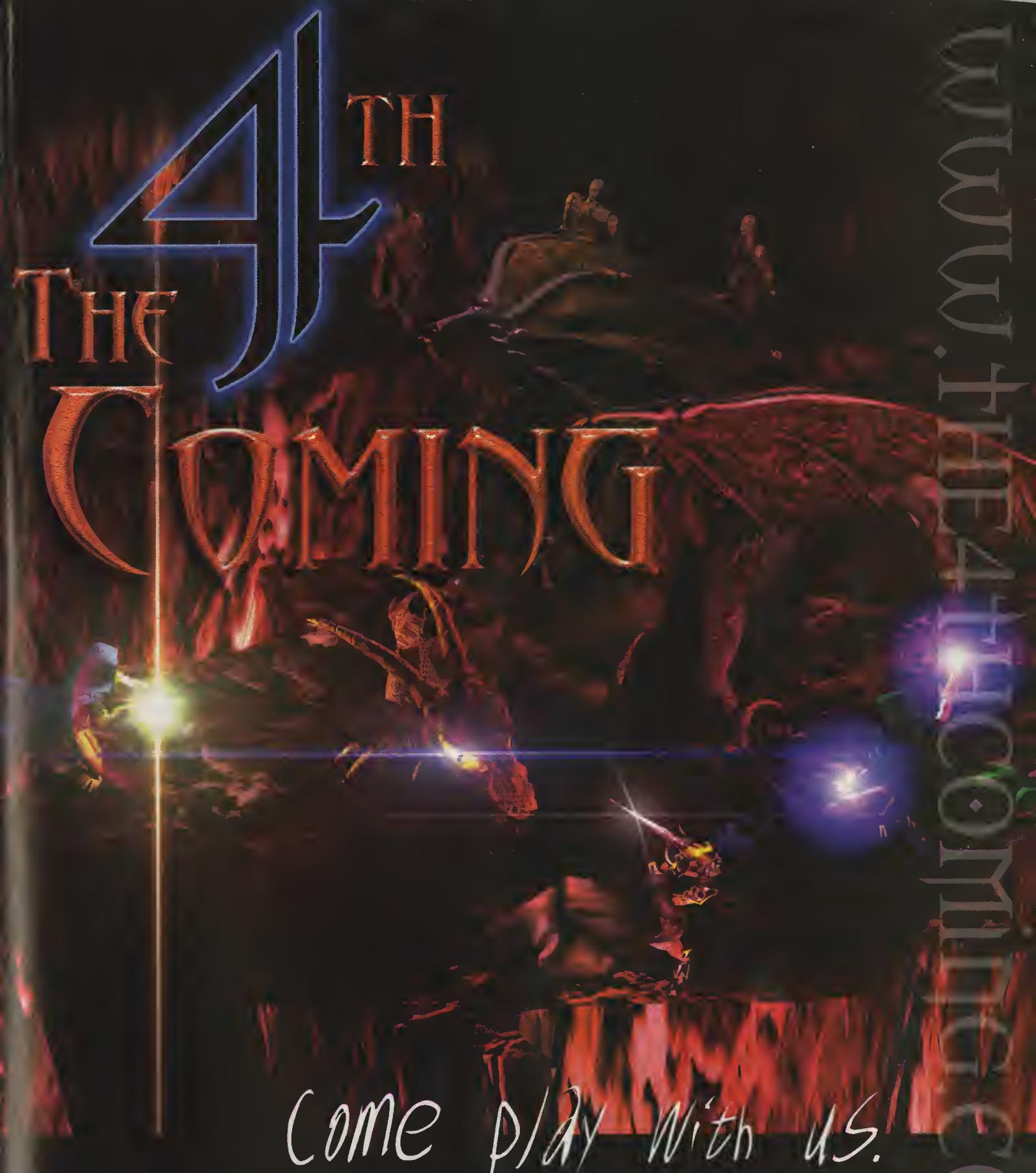


WON is a free network that matches players for online competition. The network supports WON-enabled games such as Sierra's Half-Life and Cyberstorm 2, coming this fall. The site also provides free demos and games for downloading. Titles include Golf, FPS: Football Pro '98, Hoyle Casino and Poker, Lords of Magic and Trophy Bass 2.

## BLIZZARD ENTERTAINMENT ([www.blizzard.com](http://www.blizzard.com))

The big news from Blizzard was the expansion of its Starcraft game (which was named best computer game of 1997 by the Interactive Digital Software Association) and the company's plans for the next version of Diablo.

Starcraft: Brood Wars will add 24 new scenarios to the space conquest game along with head-to-head battles against as many as eight other players. Diablo II will provide new realms and character classes, multiplayer quests for up to eight participants and an arsenal of new weapons. Both games can be played on Blizzard's Battle.net network ([www.battle.net](http://www.battle.net)). ♦



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# WIRELESS Data Developments

by Steve Stroh

## BLUETOOTH, AT&T CDPD GETS REAL, AND A WIRELESS ISP

In this column, I've discussed various types of Wireless Area Networks - Metropolitan Area Wireless Networks (MAWNs), Local Area Wireless Networks (LAWNs), Neighborhood Area Networks (NAWNs), and even In-Home Area Wireless Networks (HAWN).

### BLUETOOTH

But now it's time for the "Pico" Area Wireless Network (PAWN). Yet another coalition has come together under the name of Bluetooth ([www.bluetooth.com/index.asp](http://www.bluetooth.com/index.asp)) to develop a standard that will link two devices wirelessly within a few feet, up to 10 meters. Many of the usual computing and wireless industry suspects are present in Bluetooth - 3Com, Compaq, Dell, Ericsson, Intel, IBM, Motorola, Nokia, Toshiba, and a number of other companies.

The idea behind Bluetooth is simple - devices that need to communicate between themselves should do so wirelessly, without requiring driver software, special cables, etc. Uses of Bluetooth include:

- Communications between your cell phone and laptop
- Voice mail for the cell phone on the laptop
- Wireless data communications
- Syncing your Palm Pilot to your desktop-based calendar
- Wireless joysticks
- Interoperable wireless keyboards
- Ad-hoc wireless networks of multiple laptop PC's

Bluetooth will be a "chip level" system - embed the Bluetooth chip in your product, and you've enabled it to communicate wirelessly with similarly equipped devices. Bluetooth uses both Frequency Hopping and Direct Sequence Spread Spectrum (FH/DS SS) techniques and will operate in the unlicensed 2.4 GHz band.

Bluetooth's data transfer is variable- 432 Kbps full duplex, or 721/56 Kbps. Bluetooth incorporates a link layer security protocol and 40 bit encryption. Interestingly, Bluetooth will incorporate dedicated voice channels, which reflects its primary immediate use of linking portable computing devices to portable telephony devices.

Because Bluetooth's primary design goals are low cost and low power consumption, it implements a point to point connection, rather than point to multipoint connections. Thus, it avoids the complexities (and associated costs and higher power consumption) of a full fledged

network protocol (although it's hinted that such a network protocol is likely as a follow-on product).

Although no timetables were mentioned in any of the Bluetooth announcements, I feel that Bluetooth will be a big success, with rapid incorporation into many products. Bluetooth is a collaborative effort between powerful companies with a vested interest in its success, and its development is mostly a refinement of existing techniques. It will be relatively simple to build Bluetooth capability into laptops, and enabling them for easy connection to almost any device.

It's not too far fetched to imagine business hotel rooms with "Bluetooth-enabled" telephones. I expect that several companies (Travelling Software, makers of LapLink) will quickly make up for Bluetooth's lack of native networking capabilities.

### AT&T WIRELESS ANNOUNCES FLAT RATE CDPD SERVICE

AT&T Wireless ([www.att.com/business\\_wireless](http://www.att.com/business_wireless)) announced that Wireless IP, their Cellular Digital Packet Data (CDPD) Service ([www.attws.com/nohost-/data/da.html](http://www.attws.com/nohost-/data/da.html)) is now being offered in two unlimited usage plans. The most attractive plan is \$64.99/month with no roaming charges or per-kilobyte charges basically anywhere in the U.S.

AT&T is not the first CDPD carrier to announce unlimited usage plans for CDPD, but it is the carrier with the most Points of Presence in the U.S. This announcement signals a huge change in public wireless data systems. Until this announcement, you could either have wireless data almost anywhere, but you paid dearly per kilobyte (RAM Mobile Data, ARDIS, modem/cell phones, and CDPD), or you could have it reasonably priced, but only available in a few areas (Metricom Ricochet).

CDPD is a system that "piggybacks" data capability onto a cellular telephone system. CDPD makes use of unused (at any given moment) cellular channels to transfer data at 19.2 Kbps (raw, with overhead, effectively 14.4 Kbps).

Unlike Ardis and RAM Mobile Data's Wireless Data Systems, CDPD is based on TCP/IP. A CDPD user is issued a routable, static IP address that is good anywhere in a CDPD system, including being fully capable while mobile (reportedly up to 55 Miles Per Hour), including "clean handoffs" (no data loss) between cellular sites. Unlike a typical ISP account, a CDPD account

Steve Stroh's first exposures to wireless data and networking resulted from experiences with Amateur Packet Radio (callsign N8GNJ), and later TCP/IP on Amateur Packet Radio using Phil Karn KA9Q's NET and NOS implementations of TCP/IP for DOS PCs. Steve is active in TAPR-Tucson Amateur Packet Radio ([www.tapr.org](http://www.tapr.org)) and is a founding-member and a member-at-large of the Puget Sound Amateur Radio TCP/IP Group ([www.strohpub.com/psartg](http://www.strohpub.com/psartg)). Professionally, Steve is a system administrator. Steve maintains a web page related to his columns at [www.strohpub.com/boardwatch](http://www.strohpub.com/boardwatch). Steve runs a mailing list to discuss wireless data and networking. To subscribe, send an e-mail to: [major\\_doo@mlist.net](mailto:major_doo@mlist.net), and in the body of the message (no subject needed) put: **subscribe wireless-data**.

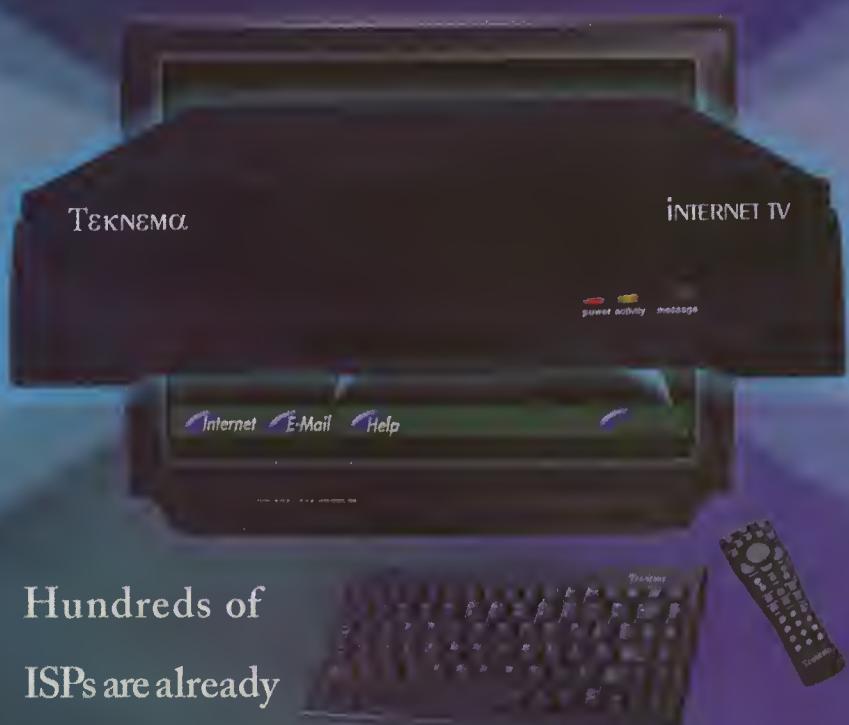
Steve lives in Woodinville, Washington, with his wife Tina and daughter Merideth. He can be reached via e-mail at [mailto://steve@strohpub.com](mailto:mailto://steve@strohpub.com).

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is a connection account only - there's no associated e-mail account, news server, not even a hostname.

CDPD was developed to satisfy requirements for ubiquitous wireless data coverage, short messages, and based on existing networking standards (TCP/IP) to be easily integrated into other systems. The example that I've heard most frequently of what CDPD was designed for is for a soda machine to be able to be polled by a central computer to find out if it needs to be refilled, and with what. If a particular machine sells out early (it's been really hot that week), potential customers can't get a soda, and, thus, lost profit opportunity for the vending company.

CDPD has gotten off to a slow start. The technology is quite sound, but the initial marketing by the cellular telephone carriers was based on the prospect of selling data by the KB (the "short messaging" scenario), and many potential users of CDPD were put off by the prospect of unpredictable bills.

Much current network-based software is quite "chatty" — it works fine when used on an Ethernet, or a modem connection. But when the same software is used on a wireless data connection, because of the shared, slower speed nature of a wireless data network, there is often additional "overhead" imposed — packets are fragmented, collisions occur and packets have to be resent, etc. In some ways, wireless data has the worst features of Ethernet and a modem connection — it's shared, so there's "contention" overhead, but the speed is much slower.

But, to the cellular carrier, there's no difference between a user's "overhead bits" and a user's "data bits." The cellular telephone carrier accurately bills on each KB transferred, hence the early stories of \$500 CDPD bills when "...all I did was check my e-mail a few times a day."

Eventually, this problem will get corrected as wireless data is more widely used and its various subtleties and limitations become understood by network software vendors and products are adapted to work more efficiently on wireless data networks.

With flat-rate CDPD pricing, there will likely be more of a shared responsibility between the cellular carrier to see that reasonably efficient protocols are used on their system to allow for more users, and CDPD users to get better performance out of their CDPD connection.

One use that CDPD is ideal for is e-mail. Nearly anywhere there's AT&T Wireless (or an AT&T Wireless IP partner) cellular telephone coverage (which is most of the U.S.), it's likely there is CDPD coverage. Another increasingly popular use for CDPD is police departments adding CDPD-based in-car terminals to query law enforcement databases directly, rather than requesting that a (usually busy) dispatcher do so over a voice radio connection.

Some Amateur Radio friends have recently become full time "RVers" (for those unfamiliar with the term, someone who lives in a "house on wheels", or Recreational Vehicle) and they sometimes end up in a campground which doesn't offer individual telephone lines for them to use to connect to the Internet. Often, access to an Internet service provider, even one that has national Points of Presence (POPs), is a long distance call. For them, AT&T's Mobile IP Service, with its unlimited connect time and national coverage, might be ideal. A key advantage of CDPD is that it will work while they are actually mobile.

The AT&T CDPD Coverage Map can be found at [http://wddsales.entp.airdata.com/wireless/coverage/zip\\_results.cfm?Map=national](http://wddsales.entp.airdata.com/wireless/coverage/zip_results.cfm?Map=national).

## A WIRELESS ISP



For various reasons, I will have owed this next story for almost a year by the time you read this. I had a great time at ISPCON '97 in San Francisco. I got to see a lot of great technology, heard a number of stimulating talks, and got to talk to a number of vendors and ISPs about wireless data topics.

But one of the very best conversations I had was waiting in line for one of the luncheons, and having a random conversation with three principals of TenForward Online ([www.tenforward.com](http://www.tenforward.com)), an ISP based in Port Angeles, Washington, not too terribly far from my home in Woodinville, Washington. The three were Darren Adkins, Evan Boyd, and Sheldon Koehler, and they told me that they enjoyed reading this column and that TenForward Online was one of those "fabled" wireless ISPs. Some time after ISPCON I contacted them and arranged a weekend visit to talk to them in depth and to see their wireless Internet access system.

TenForward Online's use of wireless Internet access is a strategic tool. The bulk of TenForward Online's revenues are from conventional dial-up accounts. TenForward does not market wireless Internet access to the general public - its market is too price sensitive, and reasonably content with dial-up modem speeds, especially since they had begun to introduce X2, 56K access.

TenForward Online's use of wireless Internet access was to submit a winning bid to connect various school district buildings for a much more reasonable price than a conventional wired solution.

In my opinion, the key reason that TenForward Online's use of wireless Internet access was so successful is that Darren, Evan, and Sheldon all have experience with wireless as Amateur Radio operators. This isn't a factor to be taken lightly — it's a stone cold FACT that in the highly standardized world of computer networking, Radio Frequency (RF) is WEIRD. Having experience with RF, especially working with Ultra High Frequency (UHF) and above is very valuable to the overall, ongoing success of a wireless Internet access system.

TenForward Online evaluated a number of vendors of wireless Internet access systems. TenForward standardized on the Aironet ([www.aironet.com](http://www.aironet.com)) for a number of compelling reasons.

- Initially, Aironet was one of the few vendors that responded to their request for evaluation units.
- Aironet offered then, and now, a very broad product line of wireless data products, and has now fully embraced the 802.11 Wireless Local Area Network standard. Particularly valuable for TenForward Online's application was a unit that could be used with a remotely mounted antenna. (TenForward Online uses pre-manufactured LMR400 coaxial cable for these applications due to its low loss characteristics.)
- As part of TenForward Online's testing, they concluded that Aironet's products are conservatively engineered — hardware, software, on air protocols, and good link margins.
- Aironet offers an excellent training program at its headquarters in Fairlawn, Ohio. The training documentation was excellent and the training assumed no previous knowledge in RF. Regularly scheduled manufacturer training should be a key differentiation in evaluation of wireless Internet access systems.

- Aironet offers excellent technical support. One of the reasons is that they can troubleshoot a problem with one of their units remotely by Telneting to it. \*Aironet's units are IP devices — they're assigned their own IP addresses, and can then be pinged, Telneted, or browsed with a Web browser to monitor, and if necessary, change settings. They can also be monitored through SNMP. This full remote access is a critical feature in maintaining reliability of a wireless Internet access system. By their nature, wireless systems are exposed to weather — they sometimes get blown down or otherwise damaged. Wireless systems can degrade gradually, and then stop working "suddenly". If an ISP monitors wireless system stats carefully, trends can be seen before a full failure, like increasing numbers of retries necessary to maintain a connection.

- Firmware for Aironet's units can be remotely upgraded — wirelessly, of course.
- Aironet is an equipment vendor — they sell hardware. They're not trying to "hook into" an ISP's revenues with "software licenses" or "franchise territories" as with other wireless Internet access vendors. Its primary business is selling units for warehouse and retail use, so they are able to achieve economies of scale for pricing and delivery.

As I'm sure you can tell, I was most impressed by both TenForward Online's choice and implementation of Aironet, and the overall capabilities and qualities of Aironet's products, services, and engineering. I am indebted to Darren, Evan, and Sheldon for a very enlightening visit, their very warm hospitality to me and my family, and their very generous sharing of hard-won knowledge with me and the readers of this column. ♦

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# ISP MATING RITUALS

by Bill McCarthy

## RMI MAY BE READY TO HYPHENATE NAME

**R**ocky Mountain Internet appears poised to become a major national player in communications. But WorldCom and MCI don't have to be watching over their shoulder just yet.

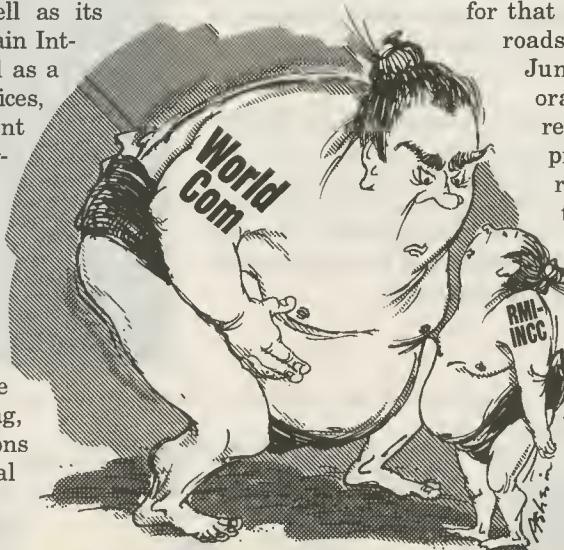
The company said June 8 that it will buy Internet Communications Corp. provided that stockholders and regulators give a positive nod, and take that company's name as well as its assets. But the Rocky Mountain Internet name may stick around as a brand for Internet access services, said Doug Hanson, president and CEO. "Without any advertising at all the Rocky Mountain Internet name has become well known around the nation," Hanson said, and the company is reluctant to let that go.

But RMI is moving into the national arena and a new tag, like Internet Communications Corp., does reflect more global intentions. While the telcos have been pretty aggressive in offering Internet services as a value added service to their voice networks, few ISPs have been as aggressive as Rocky Mountain in moving from the ISP side to offer voice services as the value add. RMI, a regional powerhouse in dedicated and dial-up Internet access as well as Web services, recently created strategic partnerships with such companies as Frontier Corporation for long distance services, PSINet for Internet backbone services, WinStar PacNet for customer WAN development and Vienna Systems for IP telephony.

RMI received approval from the Colorado Public Utilities Commission on April 23 for its newly created subsidiary, Rocky Mountain Broadband, to operate as a competitive local exchange carrier (CLEC). It was now hoping that US West will provide what it needs to begin providing local exchange services in Colorado by July 1, including private line, switched and dedicated access service, intraLATA toll, and advanced features. The com-

pany's Frame Relay backbone is one of the only Colorado-based Internet networks using Cascade switching technology, with broadband B-STDX 9000 switches placed throughout Denver, Boulder and Colorado Springs to provide redundancy.

Like many business folks who follow Net trends, Hanson and the RMI crew foresee an explosion of small business on the Internet. Preparing for that has brought it down several roads including the purchase in June of Infohiway, Inc., of Aurora, Colorado, for 150,000 shares of RMI stock. The closing price of RMI on the day of purchase was \$8.19 a share on the Nasdaq.



"We're just doing what I said we were going to do when I came here last year," Hanson said. While the company is not necessarily trying to be the next WorldCom or MCI, ISPs *must* offer a full range of voice, data, Web, and e-commerce services. "You just have to," he said. "Everybody competes with everybody else head to head." And opportunities arise for players of all sizes based on the way that they take care of customers, but companies that do not prepare for a future with integrated communications risk their existence. While the technology is difficult to predict, a company needs to set its direction and objectives then, "manage opportunity," Hanson said.

Infohiway is an online search engine with unique capabilities in its preview buttons, fuzzy links and a site mapping utility. Each function is performed rapidly with Infohiway's search technology called DST, for Data Sucking Technology. DST goes out on the Web and takes a site apart delivering the abbreviated content.

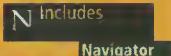
A preview button enables searchers to see a site's content with the graphics and extraneous HTML removed. When the user finds what he wants, a full view can be delivered to the browser. The fuzzy links trigger other search words and link searches to related sites, as well. The engine also has a utility that shows a site's structure graphically with links intact.

In addition, Infohiway offers two Web publications containing advertising targeted toward Web page developers. *Cut and Paste Java-Script* offers scripts every month, and the *Bandwidth Conservation Society* provides tips and tutorials about reducing bandwidth consumption and making Web sites faster. Two of the Infohiway developers and founders, Jeremy Black and Ken Covell, will join RMI management and continue to develop and market the products of Infohiway. RMI is

Bill McCarthy, a recovering newspaper reporter, is an editor with *Boardwatch Magazine*. He is surrounded by piles of press releases on a variety of Internet-related subjects. This column is one way to diminish one of those piles as well as an attempt to keep track of the mergers, acquisitions and some of the partnerships occurring among Internet service providers and their vendors. He can be reached at [bill.mcCarthy@boardwatch.com](mailto:bill.mcCarthy@boardwatch.com).



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integrating an ability to offer Web content as part of its overall plan as well as do-it-yourself help for small business customers, Hanson said.

But catering to small businesses and residential customers takes on many facets, and Hanson said he believes RMI is buying Internet Communications Corp. ([www.incc.net](http://www.incc.net)) at the right time before the two companies began duplicating efforts in the construction of their networks. INCC is a communications integration company that plans, designs, implements and maintains customized wide-area and local-area networks for voice and data. In addition, the company provides a broad range of enhanced network services, full service Internet access, World Wide Web services and outsourcing capabilities, and a network of 25 PPP POPs and 13 Frame Relay POPs outside of Colorado. The existing networks and equipment between the two companies should integrate easily as will the POPs from PSINet, Hanson said. "It was an ideal time to buy that company."

LLC, a subsidiary of ING Barings. The acquisition is expected to close in 90 days.



Hanson will remain chairman and CEO, and John Couzens, president of Internet Communications, will become the president and COO of the combined company. The consolidation of the offices and network will begin immediately upon completion of the merger.

RMI said May 15 that revenues for the first quarter of 1998 of \$1.7 million were a 27 percent increase over first quarter 1997 revenues of \$1.3 million. The company's net loss decreased by 4 percent to \$610,470 for the first quarter of 1998 from \$637,427 for the first quarter of 1997. The result of this decrease amounts to a loss per share of \$0.09. Prior to the non-cash compensation adjustment, the EBITDA loss from operations for the first quarter 1998 was \$993,552 RMI's net income loss for the first quarter 1998, applicable to common shareholders, was \$1,314,350 or \$0.19 per share, compared to \$889,637 or \$0.18 per share in the first quarter 1997.

Revenues for the company's primary services show where its strengths lie and help point to the direction for new growth. Comparing first quarter 1998 to first quarter 1997, Web service revenues increased 45 percent to \$314,341 from \$216,472; dedicated service revenues increased 130 percent to \$798,394 from \$347,592.

In January the company added three new members to its board of directors that also indicate its move toward national expansion. Robert Grabowski, a long-time corporate finance manager; Lewis Silverberg, an attorney specializing in new business creation, IPOs and, mergers and acquisitions; and Mary Beth Vitale, a local "leader" in the telecommunications market, joined Del Hock, recently retired chairman and CEO of Public Service Company of Colorado on the board.

Frontier Corporation and RMI said in April that the companies agreed to allow RMI to offer traditional long distance services to customers nationwide. The services will be carried on Frontier's SONET fiber optic network, which includes Frame Relay/IP capabilities and integrated local/long distance DMS-500 switches. Under the three-year carrier services agreement, RMI will expand its services to include long distance, calling card, audio conferencing, and inbound/outbound toll-free services.

## **NETWORKTWO LOOKING INK STAINED**

NetworkTwo Communications Group and InfiNet said May 20 that NetworkTwo will take over management of InfiNet's net-

### **Internet Communications Corporation**

The website features a dark background with a red and purple abstract graphic on the left. The main text area includes the company's name, a description of being a communications systems integrator, and a list of services. Navigation links for 'ABOUT US', 'PRODUCTS & SERVICES', and 'COMPANY INFO' are visible. A footer contains links for 'about us', 'products & services', 'company news', 'contact us', 'site index', and 'job postings'. It also includes an 'Acceptable Use Policy' and contact information: webmaster@incc.net, 7100 East Belview Avenue, Greenwood Village, Colorado 80111, (303) 770-7600.

All of the outstanding shares and options convertible into shares of Internet Communications' common stock will be acquired for a range between \$6.65 and \$6.80 per share, for a total of about \$38 million. The acquisition is subject to the approval of Internet Communications' shareholders and other conditions. Interwest Group Inc., an affiliate of Anschutz Company, holds a controlling share stake in Internet Communications and has agreed to vote in favor of the transaction. Anschutz is also Qwest Communication's parent, another major player from Colorado. Internet Communications Corp. is traded on Nasdaq as INCC and headquartered in Greenwood Village, Colorado.

When the transaction goes through, RMI will begin doing business under the name Internet Communications Corp. and will obtain control of Internet Communications' data center, 26 field offices and 180 employees. RMI gross revenues for year-end 1997 were \$6.1 million, and Internet Communications' gross revenues for the same period were \$36.1 million. The company does not expect any significant reduction in personnel. RMI has secured short-term financing of \$42 million for the acquisition from a lending group arranged by Furman Selz

## THERE ARE ENOUGH COMPLEXITIES IN LIFE. CONNECTING TO THE INTERNET SHOULDN'T BE ONE OF THEM.

Creating an Internet presence can be a frustrating experience, even for the expert. Beyond the web server there are routers to make the connections, FTP to move the files, and e-mail servers to give your mail a home. And don't forget the Domain Name Server that's required so the world can know your name. Even after you gather all the pieces, you still have to integrate them. And the costs, in time and money, can be staggering. But now there is an easier way.

### THE INTERNET PRESENCE IN A BOX

The Internet Protocol Adapter (IPAD) is the only product that fully integrates a router, terminal server, and core Internet services (e-mail, DNS, unlimited WWW and FTP servers) into a single device. With all the necessary internal and external connections, Domain Name Service, and other required functions, the IPAD includes everything you need to easily establish a complete Internet presence. In fact, it's so complete, you can add remote access by simply plugging in modems and dialing in with any Internet compatible computer.

### BUILT WITH PERFORMANCE AND DURABILITY IN MIND

The IPAD's capability is housed in a rack-mount chassis of battle-ready construction. Its custom software, optimized for the Pentium processor, yields an unprecedented combination of performance and durability that you can never get from a general purpose operating system. The IPAD may be easy to use, but it's no toy.

	IPAD	Windows NT
Computer Hardware for Server CPU	Comparable performance	166 Mhz Pentium, 2 GIG SCSI Disk, Ethernet, Caching Controller
Router Software	\$746S	96 MB RAM, \$3500
Configuration Time	Included	\$1800
Configuration Cost Sub Total	Pre-configured	1-3 hrs
System Software 0/5	—	\$70 Avg
Configuration Time	Included	\$895
Configuration Cost Sub Total	Pre-configured	S-30 hrs
Web Server	—	\$615 Avg
Configuration Time	Included	\$150
Configuration Cost Sub Total	Pre-configured	\$490 Avg
FTP Server	Included	Included
Configuration Time	Pre-configured	1-2 hrs
Configuration Cost Sub Total	—	\$50 Avg
DNS Server	Included	\$495
Configuration Time	Pre-configured	5-80 hrs
Configuration Cost Sub Total	—	\$1600 Avg
E-Mail Server	Included	\$2095
Configuration Time	Pre-configured	10-100 hrs
Configuration Cost Sub Total	—	\$1900 Avg
Support Costs Per Year	\$795	\$2480
	Includes Hardware and Software Protection	No Hardware or Software Protection
Number of Vendors	1	5
Total Cost	\$8260	\$13,600
Time from receipt to fully operational site	2 Days	120 Days

### PLUG 'N PLAY AND WALK AWAY

Many products claim to be easy to use, but the proof is in the time you spend getting it up and running. With other products you have to *learn everything* before you can *do anything* and with the Internet there's a lot to learn. Only the IPAD allows you to get started immediately, and learn as you go. Information Week said of the IPAD "*from box to working system in two hours even with mistakes.*"

And this ease of use doesn't stop there. With an IPAD even those without formal Internet training can confidently grow and maintain their own network.

### GO WITH A WINNER!

InfoWorld Magazine said "*The IPAD represents an elegant solution when you need to easily build an Internet or intranet presence. Considering the time it saves you, the price represents a good value.*" In 1995 John C. Dvorak gave the IPAD his PC Telecommunications Excellence Award because he recognized the IPAD advantage.

### DON'T WASTE ANY MORE OF YOUR TIME!

You want your Internet Presence up and running quickly without a long learning curve or sacrificing flexibility and power. Now you can have it! The IPAD is the *only* TCP/IP appliance that lets you *start immediately* and grow your site smoothly without forcing you to become an Internet expert (or hire one).

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work and 90 points of presence. Under the agreement, InfiNet will continue to provide sales and customer service to its clients, including more than 140 newspapers in the U.S., while InfiNet's Internet network operations and technical support people will become NetworkTwo employees. The buy puts NetworkTwo in position to provide ISPs with backbone access, national dial-up access, roaming services, and Web hosting services.

The agreement boosts NetworkTwo's points-of-presence from 250 to 340. InfiNet provides with Internet access services and products, including Web hosting, Web publishing, advertising delivery software, billing and customer services to more than 140 affiliate newspapers. NetworkTwo will focus on managing the network resources required for InfiNet to deliver those services and products into new markets. InfiNet is a joint new-media venture comprised of the publishers Gannett, Knight Ridder, and Landmark Communications.

Formerly the AutoNet business unit of Automatic Data Processing, NetworkTwo has been around for 27 years.

NetworkTwo wants to provide managed network services to corporate customers and network-based businesses like ISPs and CLECs, executives said. Look for NetworkTwo to continue buying as it expands its services and presence.

### **CAIS, ONEPOINT MOVE IN TOGETHER**

CAIS Internet and OnePoint Communications, a provider of communications services to apartment residents at about 450 apartment buildings nationwide, agreed May 12 to provide high-speed Internet service at 10 OnePoint properties using CAIS' new OverVoice technology.

OverVoice provides 10 Mbps Internet access over existing telephone wiring. Under the agreement, CAIS Internet, a CGX Communications company, and OnePoint will roll-out high-speed OverVoice Internet service for a nationwide commercial field trial at 10 selected apartment buildings at which OnePoint is providing communications services, including local and long distance telephone, and cable TV. The first buildings were expected to be up and running in June. If the trial goes well OnePoint will be ready to roll-out OverVoice high-speed Internet access by the end of the year as part of a bundled communication services to many of the buildings under contract nationwide.

OverVoice permits existing telephone wiring to simultaneous carry voice traffic for telephone service and high-speed data for Internet access. The technology uses existing telephone wiring to provide consumers with continuous, split-second, around-the-clock access to the Internet at speeds that can be as high as 10 megabits per second.

In addition to providing its OverVoice technology, CAIS Internet will also be the ISP for the Internet portion of OnePoint's bundled communication services, and provide OverVoice technical training and support to OnePoint.

CAIS and CGX announced in March that it had entered into a nationwide commercial field trial with Microsoft and ATCOM/Info to provide high-speed Internet access using OverVoice in hotels. CAIS is using OverVoice to provide high-speed Internet access for residents at the Arlington Courthouse Plaza apartments in Arlington, Virginia. OverVoice technology was invented by David D. Goodman, president

of InLine Connection Corporation of Arlington, Virginia, and licensed exclusively to CAIS for hotel, apartment building, and other applications.

Qwest and CAIS Internet announced June 15 a 10-year, \$100 million agreement where Qwest will provide CAIS leased and routed IP bandwidth on the 18,449-mile domestic Qwest Macro Capacity Fiber Network. This agreement expands CAIS's nationwide Internet network from five to about 130 cities, helping facilitate CAIS's rollout of its OverVoice technology to hotels and apartment buildings across the nation.

### **COMPAQ AND PORTAL GET TOGETHER**

Compaq Computer Corporation and Portal Software, Inc. said June 10 that they formed an alliance to offer customer management and billing software on Compaq ProLiant servers to providers of Internet services. Under the alliance, Compaq and Portal will cooperate on a range of technology and marketing initiatives.

Compaq will assist Portal in conducting benchmark tests on the scalability of Infranet on Compaq ProLiant servers for Windows NT-based systems and in optimizing the configuration of the integrated systems.

Meanwhile, shareholders of outstanding common stock of Digital Equipment Corporation (NYSE:DEC) voted to approve the acquisition by Compaq Computer Corporation (NYSE:CPQ) on June 11. Compaq will issue about \$4.5 billion in cash and about 141 million shares of Compaq stock, based on an exchange rate of \$30 in cash and .945 shares of Compaq stock for each common share of Digital. As of the close of the stock market on June 11, Digital common stock stopped trading on the New York Stock Exchange.

### **NORTEL LOVES AGIS**



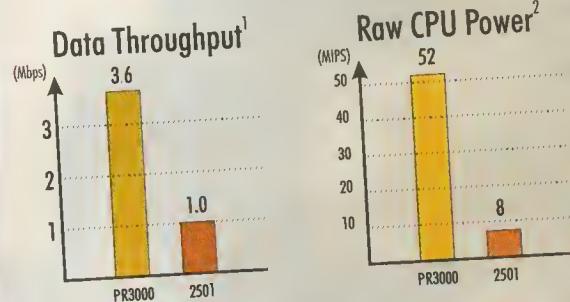
Northern Telecom (Nortel) announced June 12 that AGIS awarded it a \$220 million contract for Nortel's 1-Meg Modem equipment. AGIS plans to offer 1-Meg Modem service this fall, initially in San Jose, Detroit, Seattle and Herndon, Virginia. To support that launch, the company has ordered 1-Meg Modem equipment, Nortel's DMS host systems, associated software, and related services.

The deal is about breaking the last mile bottleneck, said Nortel and AGIS execs. Launched in October 1997, Nortel's 1-Meg Modem is a mass-market, plug-and-play high-speed data product that delivers Internet access and simultaneous voice service. For the service provider, 1-Meg Modem requires no rewiring in the central office or in the home or business, and no subscriber service call to install a voice/data splitter. The service is extremely tolerant of phone-line length and condition, and is compatible with the vast majority of all non-loaded telephone lines, the companies said. ♦

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# MARKETING 101 for ISPs

by Michael Greenbaum

## THE STRATEGIC MARKETING PLAN

Internet service is technology, but in this age of exploding growth and intense competition, technology providers must market themselves as adeptly as they deliver service. This column applies the basic principles of marketing to the needs of ISPs. Our mission is to bring you practical techniques, proven to work in this specialized arena, and to explain them for those with a background in technology not marketing.

Michael Greenbaum is a former vice president of sales and marketing at AppliedTheory. He also held senior management positions in the software, Internet, online services and hardware industries. At Borland International he was vice president of marketing responsible for all marketing and public relations functions, including the annual user's conference. As a vice president at Bell Atlantic Internet, he was responsible for the company's strategy to develop an Internet presence and later to be an Internet service provider. Before that, he was general manager of Prodigy Services Co., the pioneering online service and was instrumental in applying the ease-of-use characteristics of the consumer to business applications. His business experience began in sales, marketing and business development with IBM.

### THE STRATEGIC MARKETING PLAN

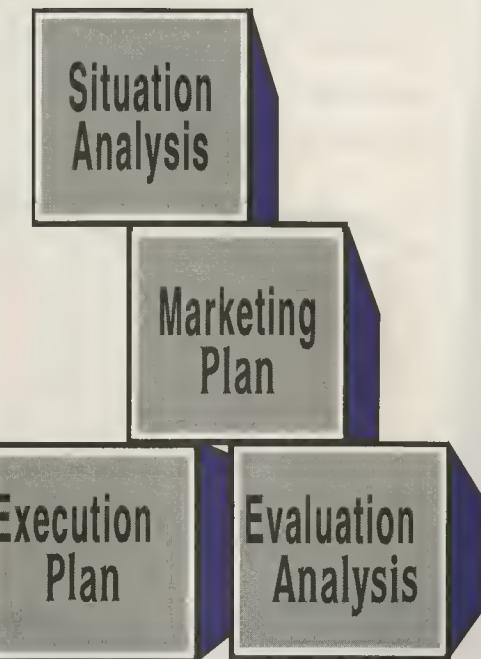
Is your "trade dress" now in top style? Does it describe your product and services in terms of your customer's benefits and does it clearly focus on your customer? Last month I covered this in "Creating Effective Collateral Materials."

Have you gotten mind share from your customers and prospects? This is the objective of brand building and the threat of *commoditization* gives you strong incentive to embrace branding as covered in the June issue. If you haven't created a value position then the only basis for comparison is price and you are at greater risk for the business crippling effect of price-driven competition.

Prior columns have talked about the importance of share of customer, where you can exploit your economy of scope and the knowledge you have of your customers to serve their unique needs better than any competitor. In the "Call Center as a Marketing Tool," I showed how to turn the lightning rod of a customer problem into the beacon of great customer service.

Each of these efforts to sell the company's services to more people or sell more to existing customers or do both — while important by itself — will multiply in value when all of the energy and force are concentrated on a clearly focused target. You must work hard at putting yourself in the shoes and head of the target and given what facts and perceptions you have about the marketplace answer the question, how would you react? Determining the target market for your service can best be done in a structure called *The Strategic Marketing Plan*. Creation of the strategic marketing plan requires a comprehensive, sequential, interlocking, step-by-step decision, execution and evaluation process leading to detailing the target market's needs and wants, and then fulfilling these needs and wants better than the competition.

This approach to a strategic marketing plan is based on four building blocks:



• **Situation Analysis** showing an understanding of the scope of your business, an analysis of your services and marketplace relevant to the target market and the competitive situation. This business review provides a qualitative and quantitative basis for the subsequent marketing plan and a rationale for all the strategic marketing decisions that will be made in the plan. Having collected the business data, this building block closes with the development of meaningful summary points that will form the basis of the plan.

- **Marketing Plan** providing the direction for the execution in the marketplace.
- **Execution Plan** showing the actual contacts with the target markets and responsible for generating the projected sales and profits.
- **Evaluation Analysis** measuring the success achieved in the plan's execution and providing learning that is incorporated in the marketing background section for the next year's marketing plan.

### SITUATION ANALYSIS - STRATEGY AND TACTICS

In this column a detailed development of the Situation Analysis will be presented. The detailed development of the Marketing Plan, Execution Plan and Evaluation Analysis will appear in next month's column.

# "I am flabbergasted at how awesome Comtrol's InterChangeVS™ 1000 product works."

—Roger Gallego



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Writing a comprehensive strategic marketing plan is a time consuming project, particularly if it has never been done before. The Situation Analysis is usually the most demanding, but without this database you have no real objective source from which to make current and future marketing decisions. Next year will be considerably less time consuming and easier than writing the first plan.

Always express your plan items from a customer's point of view. Move beyond the four "P's" of product, price, place and promotion to the four "C's" of consumer wants and needs, complete consumer cost, consumer convenience and consumer communication. Remember that the customer's cost is your price plus other costs of service acquisition and time to purchase. While your channel to market may appear easy, the customer may acquire competing services without leaving his office. Promotion flows in one direction. What is required now is to build a relationship by establishing a dialog that is ongoing with your customers.

Focus your Situation Analysis on answers to the following questions.

What business are you really in? Here you must think in broad terms of what benefits your service can bring to your customer not just what it is. The classic example of this is the original belief of railroad companies that they were in the railroad business rather than in the transportation business. In time they were overtaken by highways and airplanes who understood their business was in fact transportation of people and goods with comfort and convenience to the customer.

What is your company's vision? This must not only tell people who you are and what you do, it must provide both the focuses for the marketing plan and the metric against which success is measured.

## USEFUL RESOURCES FOR MORE INFORMATION

- The Mining Company Guide to Marketing has a useful collection of weekly articles and links to other good materials, as well as a bulletin board. <http://marketing.miningco.com/library/weely/aa042897.htm>
- Guerrilla Marketing Online is for small business, entrepreneurs, sales people & marketers of all kinds, related to an excellent series of books and seminars. The Weekly Guerrilla is an extensive collection of useful and readable articles, including one on The Art of Brochures [www.gmarketing.com/tactics/weekly.html](http://www.gmarketing.com/tactics/weekly.html)
- SmallbizNet includes an extensive library with full-text keyword searching on nearly 4,000 indexed and abstracted documents and book chapters especially chosen to help you start and run your business. Leading small business book publishers, government agencies, universities, Internet publishers, and not-for-profits contribute to this database. Extensive sections on marketing. [www.lowe.org/smbiznet/index.htm](http://www.lowe.org/smbiznet/index.htm)

What are your external limitations? These include political and legal, technological, economic and others. Examples are many, including antitrust effects on both IP networks and browsers, e-commerce and privacy legislation in the political and legal arena. Voice over IP in the technology area is among the items, which, if changed, could have a major impact on your customers and prospects.

What is the competitive environment? This can be the source of your greatest opportunities. When you have studied your competition, you can enter a market with some knowledge. Frequently competitors have defined their target market and left open markets your company can occupy and serve. One way of examining this is to array in a matrix each market competitor including yourself against the four "C's" of the customer's point of view. Intensive analysis will bring insights for new markets.

Where does my business fit in? Address your company's strengths and weaknesses, core competencies, marketing capabilities, company philosophy, sales trends for your company and your present marketing strategy.

What other items? For completeness, your Situation Analysis should also include the industry segment and consumer behavior trends.

Do your Situation Analysis now: it provides the database from which you will build the strategies in next month's column. If you have questions or comments, please e-mail me.

*Remember ...*

The successful marketing plan is meant to accomplish four things. Attract new customers to replace those who have left the business and to fuel growth. Develop repeat business to provide constant revenues and be a source of referrals. Create a positive image for you because public perception of your company will influence buying habits as much as any other marketing strategy. Outmaneuver the competition. Each of these elements is important to the financial success of your business. Please join me next month as the remainder of The Marketing Plan is developed and detailed. ♦

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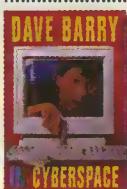
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# BIG BOARD BRIEFS

by Wallace Wang

## AMERICA ONLINE MAY APPEAR ON YOUR TV

Wallace Wang is the author of *CompuServe For Dummies, Visual Basic For Dummies, More Visual Basic For Dummies, Microsoft Office 97 For Dummies, and More Microsoft Office 97 For Dummies.*

When not working with computers, he performs stand-up comedy and has appeared on A&E's *Evening at the Improv* TV comedy show. He can be reached via e-mail at 70334.3672

@compuserve.com, bothekat@aol.com, bo\_the\_cat@msn.com, or bothecat@prodigy.net

In their continuing quest to take over the online world before Microsoft can do it first, America Online has acquired the now-defunct interactive-TV service NetChannel Inc. for an estimated \$20 million. NetChannel tried to tackle the interactive television market by itself and kept losing money. So America Online bought them out with plans to market interactive television services to its huge (nearly captive) subscriber base.

Philip Monego Sr., president and CEO of NetChannel, believes that the company provides a great deal of value to AOL. "We are quite unique," Monego said. "Our only business was developing a service that enhances TV programming with Internet content."

With Microsoft still fumbling their content for the Microsoft Network, perhaps America Online can deliver on their promise to market truly interesting, creative, and intelligent interactive television programming. Either that, or we're about to see a new wave of creativity for the pornography market, instead.

### AT&T, EXCITE TO LAUNCH ONLINE SERVICE

To counter rival search engine leader Yahoo!'s alliance with MCI Communications to launch their own Internet access, AT&T and the Excite search engine plan to launch a similar Internet service dubbed, "Excite Online Powered by AT&T WorldNet Service."

Excite Online combines AT&T's WorldNet Internet access service with Excite's search and directory content. The service will prominently feature Excite's personalized "front-door" to the Internet. With so many companies jockeying for position to be the first screen people see when they access the Internet, it's nice to know this may be the one market Microsoft won't be able to dominate any time soon. Unless, of course, you prefer Microsoft's useless content scattered throughout their Microsoft Network.

### AMERICA ONLINE STOCK CONTINUES TO RISE, INSIDERS SELL SHARES

Despite their ongoing technical problems and public relations disasters, America Online stock continues to rise, which goes to show you that the stock market (and the economy) has less to do with actual wealth than with perceived value.

America Online reported third-quarter income of \$39 million, or 16 cents per diluted share. Net income

after charges and tax benefits totaled \$18.6 million, or 8 cents a diluted share, compared with a net loss of \$4.7 million, or 2 cents, in last year's quarter. Revenues rose 54 percent to a record \$693.6 million, up from \$450 million a year ago.

Although America Online still earns the bulk of its income from subscriber access fees, they're slowly earning more from advertising and electronic commerce - which the company hopes will continue to fuel future growth.

Yet, how long can America Online's stock continue to rise? Not long if insiders give us any clue. CEO Case sold 400,000 shares for about \$35 million on May 12 and May 14 while still maintaining roughly 4.7 million shares of AOL stock.

AOL President Bob Pittman sold about 50,000 shares of AOL stock during the same week, netting about \$4.3 million. Pittman still holds roughly 1.9 million shares of AOL stock. Lennert Leader, the chief of the online service's investment unit, also sold 50,000 shares, as did Miles Gilburne, a senior vice president. Leader now holds about 1.3 million shares; Gilburne is left with roughly 832,000.

If America Online's leaders are willing to sell shares for cash, perhaps it's time for the rest of AOL's stockholders to do the same as well.

### PRODIGY OUTSOURCES MORE FUNCTIONS

In their continuing effort to transition themselves from an online service to a pure Internet provider, Prodigy has signed a deal with Softbank Services Group to outsource customer support services for both Prodigy Internet and Prodigy Classic.

The company said Prodigy subscribers won't notice the difference when calling the service's toll-free support lines. But it will enable the online service to improve service and cut costs, according to Senior Vice President of Service Support Audrey Parma. She says the company currently has a combined base of 790,000 users and handles around 10,000 support and billing calls per day. If Prodigy keeps outsourcing all the actual work, does anyone have any idea what Prodigy employees are doing with their time?

### WATCH YOUR ACCESS NUMBERS

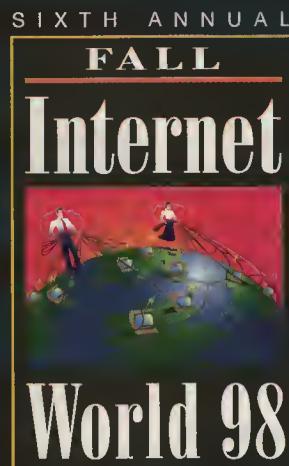
A Prodigy subscriber in Texas is stuck with a \$3,000 telephone bill after he mistakenly selected a long-dis-

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tance number for connecting to Prodigy. Leo Nooyen and his family discovered the hard way last month that they had inadvertently chosen a toll number when they signed up for the service. Their local and long-distance phone companies refuse to forgive the \$3,000 bill.

Prodigy claims such dialing errors are an industry-wide problem, but claims Prodigy isn't responsible because it takes great pains to warn users to double-check their access numbers.

So if you have friends signing up with an Internet provider for the first time, tell them to make sure they choose an access number within their local calling zone. If you aren't sure what might be a local call and what might be a toll call, look inside your white pages. You might find you could be paying more than necessary.

## GERMAN COURT CONVICTS EX-COMPUSERVE MANAGER IN PORN CASE

A German court convicted Felix Somm, a former head of the German division of the CompuServe online service, to a two-year suspended sentence for allowing customers to swap child pornography on the Internet. While Somm wasn't accused of spreading pornography himself, he was accused of abusing the medium by allowing others to break the law.

Prosecutors said CompuServe had the technical means to screen out such material, but defense lawyers denied that the firm was capable of this in Germany. Somm, who left CompuServe last year to set up his own firm, now lives in his native Switzerland and was not available for comment. To correct similar useless prosecutions in the future, Germany passed a new federal law after Somm was charged, that holds access providers not liable for material on the Internet. They are, however, required to take reasonable measures to block access to banned material.

## AMERICA ONLINE BUYS ICQ MAKER

The screenshot shows the ICQ Groupware homepage. At the top, it says "FREE?? FREE!!!" and "Download the ICQ Groupware, Install your ICQ server for your group". It displays statistics: "05/22/98 - 12,000,000 Subscribers" and "05/25/98 - 60,000 New Users Per Day". Below this, there are links for "Voice Center", "Chat Center", "Greeting Center", "Support Center", "ICQ-Email Center", "ICQ Services", and "Netphone Center". A sidebar on the left lists "What is ICQ?", "Corporate Product", "Products List", "Communication Center", "Security/Privacy Center", and "Similar Interests". The main content area features sections for "NEW! ICQ Groupware", "NEW! ICQ for Windows CE 2.0", "NEW! ICQ While You Are On The Move", and "Download ICQ". At the bottom, there is a "Site Index" and a "Feedback" section.

America Online has bought an Israeli Internet company Mirabilis, the creator of the popular ICQ e-mail service, for \$300 million. Mirabilis, pronounced "mi-RAH-bi-lis" - a Latin term meaning marvelous.

The ICQ software, distributed for free via the Internet, enables people to directly contact other people who have the software.

Users can define a group of "buddies" they want to contact via the Net, much like AOL's own buddies list feature.

ICQ (a phonetic play on "I seek you") claims more than 11 million registered users, putting it up there with AOL and free e-mailer Hotmail in terms of popularity. At any given time, more than 400,000 people are simultaneously logged on to ICQ, numbers that rival the viewership of CNN and MTV, according to company figures. Mirabilis' home ([www.icq.com](http://www.icq.com)) is currently fourth on the list of Internet sites with the most traffic.

With the purchase of Mirabilis, America Online has edged out other potential buyers including Microsoft and Yahoo! Strangely enough, America Online just might turn out to be an Internet giant in a field dominated by has-beens (Prodigy) and clueless corporations (the Microsoft Network).

## KODAK TEAMS WITH AOL FOR ONLINE PHOTO DELIVERY

Eastman Kodak has entered into an agreement with America Online to deliver photographs online.

Kodak expects to offer a service that delivers digital versions of developed photos directly to a customer's AOL address. Users will be expected to pay a still-undetermined added fee for the service.

Consumers will be able to order photos for AOL delivery from any of Kodak's 30,000 locations nationwide that offer photo developing services. Customers will check a box on the order envelope requesting digital delivery of photos. The photos will be delivered online within two days of film drop-off, the companies said.

AOL envisions a service, akin to those offered by competing photo-oriented Web sites, in which users will be able to collect photographs in an online album. AOL said it will offer access to the service via both its flagship online service and its AOL.com Web site. Given America Online's reputation for harboring pedophiles and pornography addicts, you can expect the first use for AOL and Kodak's service will be delivering custom pornography to your e-mail account.

## AOL AND EXCITE EXPAND NETFIND PARTNERSHIP

America Online plans to expand its use of search services supplied by Excite on its AOL.com Web site for the Canadian and Japanese markets. Excite currently is the default search service for the version of AOL.com aimed at the U.S. market. AOL.com, which serves as the default gateway to the Web for AOL's 12 million subscribers, is one of the Internet's most heavily trafficked sites.

As part of this partnership, AOL and Excite plan to share advertising and service revenue generated from the co-branded NetFind search service.



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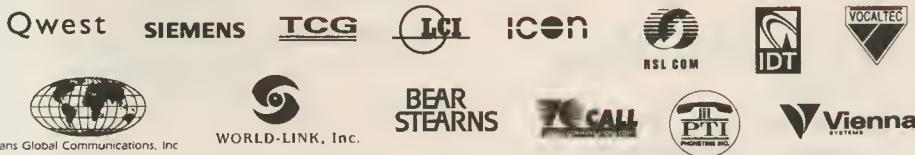
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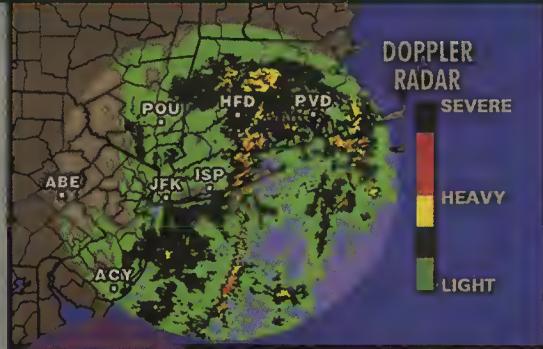
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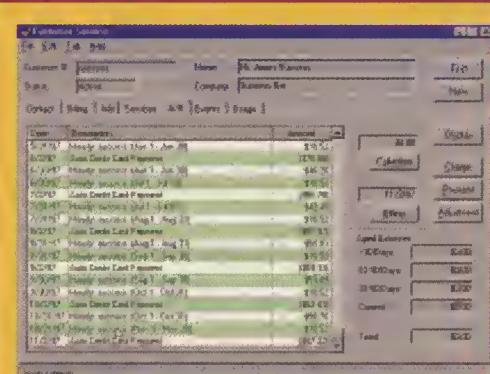
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## AOL SETTLES WITH 44 STATE ATTORNEYS GENERAL TO ALTER MARKETING PRACTICES

After being accused of misleading advertising, America Online has agreed with 44 states to alter its marketing pitch to better inform consumers of its online charges and pricing policies. As part of the agreement, AOL will pay \$2.6 million to cover the costs of the investigation. The settlement, however, doesn't involve any additional subscriber refunds, which have totaled \$34 million since 1996.

"We are demystifying the relationship between consumers and online services," said Illinois Attorney General Jim Ryan, who spearheaded the investigation. "Under this settlement, AOL must notify consumers in advance whenever there is a price increase or substantial service change. The notification must be clear and direct. The goal is to make sure that consumers know all the facts so they can make informed choices," Ryan said.

Both AOL officials and state attorneys general hailed the agreement as a future standard for Internet service providers. "We are now committed, now that we have these world-class standards for consumer service inside the Internet industry, to working with the attorneys general to assure that in fact these standards are applied industry-wide," said George Vradenburg, general counsel of AOL.

Under terms of agreement, AOL's "Free Trial Offers" must be accompanied by new disclosures stating that free trial hours must be used within a month and the consumer must cancel the trial to avoid billing. AOL also must mail a notice of cancellation.

If AOL increases its monthly fees or otherwise modifies its contract, it must provide clear notice of the change at least 30 days in advance. If such notice is not delivered, a subscriber is entitled to a refund on any price increase. AOL also agreed to notify all consumers through a pop-up screen that they will incur added charges when they enter a game or other premium-service area.

Now that AOL has agreed to be honest, let's hope that they won't find ways to mislead consumers in other ways that will require the threat of lawsuits to straighten them out. If America Online can repair their past public relations disasters, they might actually be able to monopolize a good chunk of the Internet. ♦

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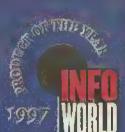
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# STREAMING MEDIA

by Doug Mohney

## STOCKS AND TAKING STOCK

**D**isclosure notice - In the course of duties during my day job, I may have chatted with one or more the below-listed companies, so take any favorable comments made with the appropriate amount of healthy skepticism

### THE STREAMING MEDIA STOCK INDEX?

Companies like to make name changes before they go public. A name change clarifies corporate identity, what the company actually stands for. Progressive Networks turned into RealNetworks just before filing their IPO and AudioNet evolved into broadcast.com to reflect its shift to increasing video coverage - and before they filed the forms for their public offering in mid-May.

If you're into playing the stock market, or even if you believe that watching the prices of newly public companies is the way to gauge the health of an industry segment, your time has come in the streaming media field. There are four companies tied to the Internet broadcast arena that are either public or in the process of going public as of this writing.

Company	Ticker Symbol	Web Site
broadcast.com	????	<a href="http://www.broadcast.com">www.broadcast.com</a>
InterVu	ITVU	<a href="http://www.intervu.com">www.intervu.com</a>
Microsoft	MSFT	<a href="http://www.microsoft.com">www.microsoft.com</a>
RealNetworks	RNWK	<a href="http://www.real.com">www.real.com</a>

As of this date (June 1, 1998), broadcast.com has not gone public, but should have a stock symbol by the time you read this.

It's a nicely represented set of companies. broadcast.com is a making a play based on being a "Next Generation Broadcaster," scooping up as many name brand content deals as they can cut for audio and video and putting them out on the Net.

If you're into the "Gateway/Portal" theory — i.e. that there is value if lots of people hit your home page a la Yahoo!, Excite, and Lycos — broadcast.com is positioned as a prime-time "portal" to draw in web surfers/listeners/viewers. More listeners/viewers translate into more advertising dollars and more ways to market advertising dollars. broadcast.com has also assembled an impressive set of backers, including Motorola, Intel, and Yahoo! Add a decent PR firm and

the only downside is mutterings I've heard about broadcast.com not optimizing revenues from their radio ad inventory.

InterVu is a "glue" company for Internet broadcast. It takes off-the-shelf hardware and software, adds a heavy dose of network engineering and some customized reporting, to act as a one-stop shop. Hand them a video tape and they handle digitization to delivery, but like stagehands in a musical production, you don't see them behind the stage.

InterVu has a boatload of video distribution servers spread around the Net at places like Exodus, UUNET, and GTE Internetworking to make sure that encoded video is available for viewers around the Net. From an investment standpoint, InterVu has been a public company for over a year and is going back to the well with a round of 2,000,000 shares some time in May or June.

RealNetworks - who are they? Are they a software company or a services company? They'd like to be both, selling copies of RealNetworks server software and clients by the millions, as well as operating the high-speed and high-quality distribution networks in conjunction with MCI, er, Cable and Wireless.

RealNetworks has a great management team, the true "visionary" in founder Rob Glaser, and established market dominance in the software side of the streaming media field. They've got deep pockets, a solid brand name, and enough savvy to keep Microsoft at arm's length. Some would argue that Microsoft's investment in RealNetworks was a total sell-out; I'd say that Real cashed in on an opportunity. Certainly, UUNET was not overwhelmed by Microsoft's investment and eventually ended up as a property of WorldCom (a budding monopolist instead of a demonstrated monopolist).

Then there's the 800-lb. gorilla — Microsoft. Perversely, as Microsoft stock stays down, their influence in the streaming media/Internet broadcast arena stays low. They've bought Vxtreme, given away the NetShow server with NT and NetShow clients, plus they intend to bundle in native audio/video support into Windows '98 and future versions of Internet Explorer. They've worked real hard to position themselves as powers in the cable and broadcast TV space with mixed results.

The cable TV people don't really trust the Redmond boys but NBC has a continuing relationship through MSNBC and other projects. What continues to worry people is Microsoft's unabashed enthusiasm to be a

Doug Mohney was employee #10 at DIGEX. He has learned, and forgotten, a lot about help desk support, competitive intelligence, sales and marketing, leased-line service ordering, telco service, and public relations.

He makes no pretenses at understanding anything more about the technical side of IP other than being able to get a PPP account working.

His writings have been published in *LA View*, *Washington Technology* and the *Washington Post*. Doug receives e-mail at [moo@clark.net](mailto:moo@clark.net).

software developer and content provider. Metaphorically, not only does Microsoft want to own the way a television works (software), but the content and advertising streams that show up on the TV as well.

## BIG, BOUGHT, OR DEAD

Venture capitalists and corporate investors talk about the end game — the results of what happens with a start-up company. Believe it or not, an IPO is only one step and not the final step for most companies. Typically, companies become “big, bought, or dead.” Big means with huge amounts of revenues they go buy other companies and be a force within the marketplace — see Microsoft for example. Bought translates to being acquired — little fish swallowed by bigger fish, such as Vivo being purchased by RealNetworks. And dead, is, well, dead.

Microsoft is big. RealNetworks is big and will continue to grow bigger, but could be bought by someone bigger. After all, IBM bought Lotus. Could someone buy RealNetworks? The answer is, quite simply, “Anyone but Microsoft.”

Would RealNetworks want to be bought? A much more interesting question and one that isn't easily answered. In an era of mergers and buyouts, if the price is right, anyone is for sale. Certainly, RealNetworks would like to avoid the fate of Netscape and be overwhelmed by the clout of Microsoft.

This leaves us speculating on the futures of InterVu and broadcast.com. Today, I'd say both companies have a good chance of being. InterVu is creating solid infrastructure to distribute audio and video in lieu of a more elegant alternative coming along (like IP multicast across Tier 1 providers — NOT!). They could be bought by a larger Tier 1 ISP or Web hosting provider, perhaps GTE on a collecting spree or even RealNetworks.



broadcast.com has the most interesting speculative future. ISPs and Web hosting providers have shunned away from purchasing “portal” sites and broadcast.com is not likely to break this trend. Ignore for a moment that all the “portal” Internet companies, with the exception of AOL, are overpriced as of this writing.

broadcast.com could be bought by RealNetworks, a third party shopping for a new portal site with more excitement than the search engine companies, or by one of the traditional broadcast companies (CNN, ABC, CBS, NBC, Fox) in search of a larger footprint on the Net.

A traditional broadcast company almost sounds counter-intuitive until you realize that one would have a boatload of

money, large libraries of content (reruns), and broadcast rights to a large number of live events.

Today, there haven't been any bidding wars for the Internet broadcast rights to live events such as World Cup matches or the Olympics, but such competitions could take place as early as 2002 for the Winter Games in Salt Lake City. CBS or NBC is unlikely to play anything other than the medal ceremonies for such events as curling or the biathlon, and only if the medal winners are American.

But if you want to see the biathlon and you don't care who is playing, or if you happen to be an expatriate rooting for the athletes of your homeland, the ugly American broadcasters aren't going to give you what you want. The bill for Internet broadcasting would be paid for by someone willing to pay for advertising to a technically literate overseas audience - cough it up Coca-Cola!

Further, a traditional broadcaster would be purchasing Internet broadcast expertise. It's not a totally foreign concept since CLECs ended up purchasing Tier 1 ISPs for their experience and customer bases, rather than having to re-invent the wheel.

broadcast.com is going to be very interesting to a lot of different people who want to play the acquisition game for the “Next Generation Broadcasters” and could also include people in the content game such as Disney or the Discovery Channel. The only sadness involved here is that there is only (currently) one broadcast.com available for purchase. Will more develop? Stay tuned.

## WHO ELSE TO WATCH

Beyond this set of stocks, who else to watch? The music people will be cheering on K-Tel and CD-Now, but neither company is into real-time streaming media. White Pine Software? Sorry, they're into interactive video conferencing via CUSeeMe and have finally found a niche in distance-learning applications. None of the unique content creators are publicly traded, neither are Internet broadcast integrators such as TV on the Web and The Sync ([www.tvontheweb.com](http://www.tvontheweb.com) and [www.the sync.com](http://www.the sync.com)).

Instead, the other “basket” for Internet broadcast related stocks would be anything that enabled faster and more affordable bandwidth to the home. Start with the underestimated cable modem companies. Certainly, @Home is not breaking installation records. On the other hand, they are steadily building colonies of high-bandwidth consumers around the country. I've heard rumblings of any number of smaller, out-of-the-way towns that one wouldn't normally consider as high-tech Meccas being converted to two-way high-speed cable modem communities.

If you have to talk cable modems, you have to talk about the opposite twin — xDSL. Can anyone tell me what standard of xDSL we are using this week for consumer work? RBOC stocks such as Pac Bell and US West are worth watching. I haven't made up my mind yet about Bell Atlantic - they seem to be too busy pushing yesterday's technology of ISDN over putting out tomorrow's in a timely fashion.

Consumer wireless is a pipe dream for the speeds needed for decent streaming media and anyone telling you otherwise has been puffing on the pipe really, really hard. Satellite to consumer services sounds hot, but must deal with the basic prob-

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lem of having to deal with the consumer end-user. There's a big difference between the mass-market idiot-proofing of DirecTV when compared to the headaches involved in installing DirectPC by anyone other than savvy end-users.

Finally, content providers look like good bets. Disney has been pretty gung-ho on adapting new technologies and creating new content for new media. Furthermore, they're one of the few companies unlikely to be bought by Microsoft anytime in the near future. Out of the traditional television broadcasters, NBC and ABC have both been out on the leading edge, but NBC has spread money across the table on different projects.

### LOOKING FORWARD

September: (Deadline: Early July) Looking Forward and Looking Back - One year of Streaming Media: A time of Review. October: (Deadline: Early August) Moo's Blue Ribbons for the Year.

I'll try to put the more interesting time-urgent items on my Web site, [www.interestingtimes.com](http://www.interestingtimes.com), but I can't promise near-real time updates. Between the day job and the travel, I'm averaging a two to three week lag time. ♦

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# EURO NEWS

Richard Baguley

## BT PREPARES TO TAKE OVER THE UK

**N**ot content with dominating the telecom market in the UK, British Telecom is now planning to try to take over the ISP market. A new service that they are launching in the Autumn threatens to fundamentally change the ISP market in the UK and leave them in a dominant position in that market.

The new service (which goes by the rather odd name of BT Click) will offer Internet access for two pence a minute to anybody with a BT telephone line. The service (which is being tested in Northern Ireland in preparation for a national rollout in September) will not require any registration or setting up of accounts - all the user has to do is to set his or her modem to dial a special number and he or she can get online.

The important bit is how users pay for it — the charge for the access will be added to the telephone bill, giving a combined bill for voice calls and Internet access. BT was, until recently, prevented from doing this by government restrictions following privatization, but the government recently lifted these, claiming that the market was sufficiently competitive to allow BT to market these services on a fair basis.

BT's approach on marketing this service is pretty obvious — attracting completely new users to the Internet in a risk-free way. In the press release that announced the new service (at [www.bt.com/World/news/newsroom/document/nr9851.htm](http://www.bt.com/World/news/newsroom/document/nr9851.htm)) BT's head of Internet services said: "We believe it... marks the first step towards Internet for everyone. All those who have felt inhibited from using the Internet for reasons of cost, commitment or technical complexity can now step into the electronic future...", BT is planning to spend a large amount on promoting this service, including direct mail to over 13 million of their existing customers and extensive advertising.

Not surprisingly, many ISPs aren't happy. Many have recently spent large sums on trying to attract new users to the Internet, and BT now wades in and undercuts them all completely — they can't offer a per-minute service without a minimum fee, and neither can they collect their fees as part of the telephone bill. While the service that BT is offering is pretty basic (with no e-mail, news access or free Web space), how many customers are going to be willing to pay extra for things they can get elsewhere for free? After all, BT themselves is already involved in a project to offer a free e-mail address to everybody in the UK for the millennium, and places like Tripod or Geocities can offer free Web space.

Richard Baguley is the technical editor of *Internet Magazine*.

He lives in North London, near the homes of W.B. Yeats and Sylvia Plath, although he has yet to bump into either in the local Safeways.

His writing has appeared in numerous places, such as *Mac Format*, *Wired*

*News and WebMaster*. He is an ex-editor of *Amiga Shopper* (which one ex-contributor described as being "enthusiastically dull") and *Internet Today*.



So, it seems likely that the shape of the UK ISP market is going to change rapidly over the next year or so.

There are currently something like 280 or so ISPs in the UK, and I'd not be surprised if this drives many of the smaller companies out of business and severely damages the subscriber figures of many of the larger ISPs.

## GERMAN ACTION SHOCKS NET COMMUNITY

Is an ISP responsible for the Web pages that its users access? The worrying answer may be, in Germany at least, yes. In a recent case, the ex-head of CompuServe Germany has been found guilty of complicity in allowing access to material that is banned in Germany, including neo-Nazi material and pornography. The judge in the Bavarian court (which is widely considered to be one of the most conservative regions of Germany) fined Felix Somm 100,000 Deutch Marks (around \$56,000), claiming that "Even on the Internet there can be no law-free zones."

Unsurprisingly, the judgment was greeted with shock and surprise. Not least by Somm himself — one press report claimed that after the judge read the verdict, Somm spat at the bench and had to be restrained by his defense team. Few had thought that any court would hold Somm responsible for material held on Web servers in other countries, especially in 1995 and 1996, long before the creation of most modern filtering tools and content ratings systems.

Somm left CompuServe in 1997 to found his own software company ([www.somm.com](http://www.somm.com)) and was responsible for introducing many of the controls on usage and access that are now featured in CompuServe throughout Europe. AOL (who now own CompuServe) said that they were "surprised and disappointed" by

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the verdict, and the German newspaper *Suddeutsche Zeitung* printed an editorial that asked: "What has gotten into the Munich Judge? Did he simply want to set an example out of sheer anger?"

This case could have a wider effect — if an ISP could be held liable for users accessing illegal content, how many ISPs are likely to consider opening branches in Germany? How many high-tech firms are likely to consider opening branches in Germany when they could be held liable for their employees possibly accessing illegal content? The German government has already been criticized for introducing a law that requires ISPs to build tapping systems into their networks, with the ISP having to bear the cost, and many Germans fear that this decision could make companies reconsider their decision on where to site their new European offices.

Fortunately, it seems unlikely that this will happen. Somm is planning an appeal, and ironically enough, even the prosecutors who brought the case have teamed up with Somm's own legal team to help the appeal. These typically take six to eight weeks in German courts, so the appeal won't be heard until July. In fact, the prosecutors had asked the judge to drop the case and acquit Somm before the verdict was announced, but he refused.

The criticism within Germany of the judgment has been widespread and vocal (including many members of the German Parliament), so hopefully it won't have much of a widespread effect. However, it does show that ISPs and Internet users should watch out — it's unlikely that this will be the last case of this type in both Europe and the U.S., and many activists are pointing to other similar cases which are still to come to court throughout Europe.

One ISP in the UK (Colloquium at [www.colloquium.co.uk](http://www.colloquium.co.uk)) has already reacted to the case — they are restricting access to their news servers to customers who can prove they are over 18 and who will agree to be held responsible for preventing minors gaining access to the system. They are also warning customers that accesses to newsgroups will be logged and could be passed to the police. The MD of Colloquium said, "No chief executive wants to be associated with pornography, racism and religious extremism..., Pornography flourishes on newsgroups only because they are anonymous. We as ISPs can and must strip away this anonymity."

## **MCI-WORLDCOM DEAL COULD FALTER ON EU RESTRICTIONS**

A few weeks ago, it seemed that the merger between WorldCom and MCI was a done deal. The U.S. authorities had decided that there was no problem, and the two companies were furiously making plans for how the combined company would work. However, the companies had reckoned without the European Union.

Late in May, the EU competition commissioner, Karel Van Miert, whose job it is to ensure that free and fair competition exists in European markets, decided that he wasn't happy. He felt that the combined company would have a dominant place in the European Internet market, as WorldCom already controlled a not inconsiderable chunk of the market through their ownership of UUNET and several other European ISPs. Combine this with MCI's weaker (yet still not inconsiderable)

portion of the market, he claimed, and you would have a company that would be able to use their market share in an anti-competitive fashion. He told a news conference in Washington that "I'm not sure that what has been offered is good enough. I have my doubts... (the proposed deal) needs to be tested in the market. We have to check with other companies, the other operators in the market." In theory, the EU could block the deal, or at least cause legal problems that could take years to resolve and would delay the merger from taking place.

The two companies had to act — although both are primarily U.S. based, both have significant market share in Europe and recognize it as a vital marketplace. If they wanted the merger to go ahead, they would have to do something to persuade the EU that there wasn't a real problem. So, they quickly reached a solution that they thought would deal with this — sell off MCI's Internet business. Into the breach stepped UK based Cable & Wireless, who signed a deal to buy most of MCI's Internet activities for the tidy sum of \$625 million. It's a good deal for Cable & Wireless — in one fell swoop they get one of the world's largest Internet backbones, both in the U.S. and abroad.

Unfortunately, the EU still wasn't happy. They were still concerned that the combination of WorldCom's Internet and MCI's other telecom networks would give them too much dominance in a market that is still in its infancy, with many countries only just having lost their state telco monopoly. Karel Van Miert suggested that one way to satisfy the EU might be to sell UUNET, or at least the European bits of it, thus giving up a large chunk of their market share. Unsurprisingly, he acknowledged that this was pretty unlikely to actually happen. WorldCom also thought it was pretty unlikely, with some top executives indicating that this could scupper the merger deal. They'd rather lose MCI than UUNET. Abandoning the merger deal would cost them a lot (not least a \$1.6 billion breakup fee), but they would rather do this than dispose of UUNET.

It was around this point that alarm bells started ringing in Cable & Wireless. If the merger deal fails, they must have thought, won't MCI decide they don't really want to sell us their Internet business? After all, it's a pretty key part of their business if they are to remain on their own. So, they took MCI to court, seeking an order to ensure that MCI can't back out of the deal if they decide that it doesn't suit them somewhere down the line. Meanwhile some sources claim that MCI is planning to back out of the deal with Cable & Wireless and sell off its entire Internet operation to the highest bidder, including their retail Internet operation.

Those of you who lost the thread of this business some time ago are excused — the whole situation is getting increasingly complex, and shows no signs of getting simpler. The EU is unlikely to make a decision on how they view the merger until July at the earliest — one EU analyst claimed that the decision "will involve a major clarification of definitions and power structures on the Internet." Not surprisingly, there are a lot of people awaiting the decision with some interest. ♦



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# EYE on E-MAIL

by Eric Allman

## PROCESSED PORK BYPRODUCTS

Last month I gave a brief introduction to the protocols and concepts in standards based Internet mail. This time I'm going to discuss one of the scourges of our time: unsolicited commercial e-mail, often called "spam."

### WHAT IS SPAM?

That is, other than processed pork byproducts or the punch line in a Monty Python skit. The usual definition is unsolicited commercial e-mail, but I find this definition annoying for several reasons. First, some spam isn't commercial: when I receive a message exhorting me to change my religion, that isn't commercial, but it is certainly spam. On the other hand, when I receive a message announcing a conference that is a follow-on to a conference I attended the previous year, it is certainly unsolicited, and they do want my money, but I don't think of that as spam either. I have good reason to believe that they are only sending that mail to previous attendees, and hence it doesn't have the "shotgun" feel that characterizes spam.

My general definition of spam is e-mail that is sent to as many people as possible for whatever reason. Spam need not be commercial (although it usually is), and although spam is always unsolicited, not all unsolicited e-mail is spam. Spam is possible only because the cost of sending it is borne primarily by the recipients rather than the sender.

Traditional bulk mail (of the sort that fills my physical mailbox to repletion on a daily basis) costs the sender some real amount per piece of mail sent. Spam essentially has a fixed cost to the sender regardless of the number of messages sent. This gives them no incentive to try to target the message to people who might actually be interested in their product or message. In fact, it works in exactly the opposite way: they have the highest incentive possible to send their message to the greatest number of recipients possible. And that is the seriously offensive part of spam.

As if sending spam wasn't already cheap enough, some spammers lower their costs even more by using open ("promiscuous") SMTP relays to do the dirty work. Besides forcing someone else to do the lion's share of the sending costs, it implicates a third party in the spam.

Notice that I haven't described anything here that makes it easy to detect spam. Although it is true that many spam messages have distinctive "Subject:" or "To:" headers, this is incidental.

Eric Allman is the chief technical officer at Sendmail, Inc., a leading e-mail server company based in Emeryville, California. He is also the author of the *.i sendmail MTA*, the *lme macros*, *syslog*, *trek*, and a variety of other fun programs. He can be reached at [eric@sendmail.com](mailto:eric@sendmail.com).

### CONTROLLING SPAM

So what is a postmaster to do? Controlling spam is an arms race; we come up with a way to combat spam, and they respond with ways to slip past our defenses. However, there are some possible approaches. In this section I'll talk about what you can do with sendmail, although other MTAs have similar abilities. In the next section, I'll describe some other products that are recently available, or will be available soon.

Generally speaking, spam control is a reactive sport - that is, you can block further receipts of spam after having received one or more. To do this, you need to find a fingerprint, that is, some way of identifying the source of the spam. In many cases the domain name of the sender is sufficient. For example, *cyberpromo.com*, *258.com*, and *impactmarketing.com* are examples of domains that seem to exist solely to send spam. In other cases the entire sender address is needed. I've recently blocked *noriskbiz@hotmail.com* and *works4u@ix.netcom.com* from my mail server. Blocking just the domain (*hotmail.com* and *ix.netcom.com*) would reject too much mail. Most mailers that support this functionality use a database of domains to be rejected; for example, for sendmail you include the line:

#### FEATURE(access\_db)

in your **m4** configuration file to enable the database, and then edit the file **/etc/mail/access** with a list of domains and users that you want to reject:

<i>cyberpromo.com</i>	REJECT
<i>258.com</i>	REJECT
<i>impactmarketing.com</i>	REJECT
<i>noriskbiz@hotmail.com</i>	REJECT
<i>works4u@ix.netcom.com</i>	REJECT

You then build this using makemap:

**makemap hash /etc/mail/access < /etc/mail/access**

It is important to be careful about what you reject, since spammers like to use a "hit and run" technique where they get an account through some innocent ISP, send a load of spam, and then disappear. If you rejected mail from the entire ISP, you might reject legitimate mail from an innocent third party. One school of thought says that this is reasonable because it encourages ISPs to screen their customers more carefully, and indeed most are trying to do that, although that can be hard. Some ISPs are attempting

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this by insisting on some way of securing a charge against new customers; if the spammer uses this technique, the ISP can bill them for some substantial amount of money. However, the really slimy spammers sign up using stolen credit card numbers, and ultimately the ISP is left holding the bag.

Other fingerprints occur in the headers. For example, in my experience, no mail that has the header

To: friend@public.com

is in fact from a friend, so I use header ruleset checking to reject all of these out of hand.

There are a few proactive approaches you can use. For example, as of version 8.9, sendmail rejects mail from domains that don't exist. Just this morning someone named 19985012@11986.com tried to send me mail, but since the domain 11986.com doesn't exist, I declined to accept their mail. My machine also rejects all numeric usernames originating from aol.com and msn.com, user names starting with a digit from juno.com, and user names longer than 10 characters from aol.com, as well as all messages with Message-Id: headers that are not syntactically valid.

As of version 8.9, sendmail also refuses to promiscuously relay SMTP by default. This makes it harder for spammers to find sendmail sites to use as third party relays.

## AUTOMATING THE PROCESS

Clearly, keeping up with the latest spam is an arduous job. But there are alternatives.

The Mail Abuse Protection System project (<http://maps.vix.com>) includes the Realtime Blackhole List (RBL). This system uses a special DNS zone to distribute information about spammers. Specifically, it blacklists ranges of IP addresses; if you subscribe to this service, your SMTP daemon will refuse connections from any address that is included in the database. This service is controversial (some people claim that it is too easy for innocent people to get on this list), relatively low-powered (it doesn't check headers, indeed, it doesn't check anything other than the IP address of the SMTP client that is trying to connect to you), and free. To use it in sendmail 8.9, include:

FEATURE(rbl)

in your .mc file.

Berkeley Software Design ([www.bsd.com](http://www.bsd.com)) sells a MailFilter product. This is a hardware box (an "appliance") that includes a spam filter. Essentially, it acts as a firewall for spam. Internally, it runs a version of sendmail that has a database of spam fingerprints; this database is updated dynamically over the Internet, so that you don't have to keep the database up to date yourself.

At least one company, Bright Light Technologies, ([www.brightlight.com](http://www.brightlight.com)) is dedicated to "ending spam as we know it." The company is producing an API for integration into MTAs that will access a dynamic database of spam fingerprints.

The trick with any of these dynamic systems is to keep ahead of the spammers. You need three things to succeed: a way of fingerprinting spam messages, a source of spam messages to

fingerprint, and a reasonably secure way of distributing those fingerprints.

The techniques I described in the previous section are specific to the message envelope and header, but it seems pretty clear that message body fingerprints are useful as well. This is hard: if the spammer includes a salutation ("Dear Eric" if they actually know my name, or "Hi, Martha asked me to send this" where "Martha" is a random common name) a simple MD5 fingerprint doesn't work. Creating decent fingerprints is going to give some folks a proprietary edge.

Another problem is collecting spam to fingerprint (yes, there are people out there who want to receive spam). The trick is that these services want to receive spam as soon as possible, and the spammers don't want them to receive anything at all. The usual approach is to have "stealth accounts" that aren't owned by any real individuals; anything received there is going to be spam. To attract spam, these "people" might post to newsgroups, create Web pages with MailTo URLs that will get indexed in the search engines, and so forth. For obvious reasons, the companies keep the actual methods proprietary.

The third part of the problem is distributing the fingerprints. The RBL mechanism uses DNS with a short Time To Live; this mechanism is easy to distribute and access, but it is limited in the types of the data that can be represented. The others use some sort of authenticated file copy. Again, no one is giving out details, but I'm guessing something ssh-like is probably the approach being used. The distributions occur fairly frequently, as often as every 15 minutes when necessary, perhaps once a day in some cases. Of course, this gives these folks a nice revenue stream: since the real value is in having an up-to-date database, you are really paying them for the service rather than the product. But if it saves you time and money, then it is well worth it.

I suppose I also need to talk about legal remedies. Like "junk faxes," spam has the property that the majority of the cost is borne by the receiver, and hence there has been a movement to expand the junk fax law to include junk e-mail. I think this is going to fail. Junk e-mailers will just move out of the country. When faxing, they still had to pay the phone costs, which go up when the calls are international. But when e-mailing, the costs do not go up, and hence this is not a deterrent.

## AND IN CLOSING...

None of these techniques I've described are going to completely eliminate spam. In fact, the cost of doing so would probably be prohibitive. Really, the goal is to make spam sufficiently unprofitable that the distributors will switch to something better targeted. For the time being, the price of a spam-free mailbox is eternal vigilance. ♦

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# Notes From The Underground

## EASTER EGGS

by Wallace Wang

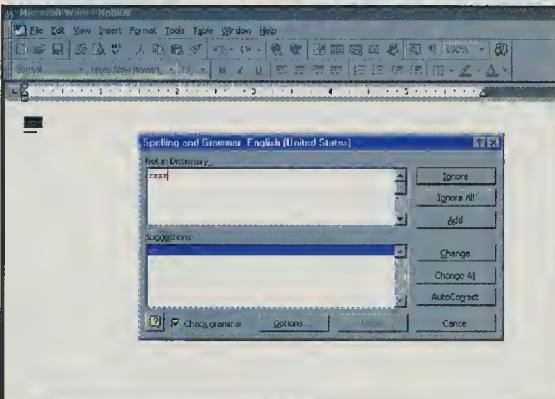
Programmers tend to be a rather playful lot. So while corporate executives (the "suits") strut around trying to impress their peers with their appearance, programmers try to impress each other by creating unusually creative ways to identify themselves. Since individual programmers rarely get credit for their programs in the same way that movie directors get credit for creating the latest Hollywood blockbuster, programmers have learned to slip their names into their programs through back doors known as Easter Eggs.

Easter Eggs are undocumented features that often displays the names of the programmers in a marquee across the screen, or offers a similar "secret" that has nothing to do with the program's intended purpose and exists purely for your (and the programmers') amusement.

Almost every program has an Easter Egg — you just have to figure out the secret keystrokes or mouse clicks to find them. Since most people aren't likely to stumble across an Easter Egg on their own, programmers often "leak" out their secrets so others can enjoy their carefully hidden surprises.

### MICROSOFT'S EASTER EGGS

If you're using Word 97, type "zzzz" in any document and press F7 to run the spell checker. Word 97 displays an interesting alternative for "zzzz," which is a phrase normally associated with sleeping.



To find Excel 97's Easter Egg, press F5, type "X97:L97" (without the quotation marks), then press Enter. Hit Tab, hold down the Control and Shift keys, and left click on the Chart Wizard icon on the toolbar. A simple flight simulator appears on the

screen, letting you "fly" over a fractal landscape of mountains using your mouse. While not as detailed or sophisticated as normal flight simulators, you might find it amusing to play at work.

To view Outlook 97's Easter Egg, create a contact named Ren Hoek. Select that contact, click on Help, and About Microsoft Outlook. Hold down the Control, Alt, and Shift keys, then click on the OK button. A list of Outlook 97's programming team will scroll up the screen.



Internet Explorer 4.0 has an Easter Egg that you can see by selecting Help from the menu bar, then clicking on About Internet Explorer. Hold down the Control key and drag the "e" logo onto the Earth icon. Release the Control key, then hold it down again. Move the "e" logo over the "Microsoft Internet Explorer 4.0" text. The text slides to the right, revealing an unlock button. Still holding down the Control key, move the "e" logo back over the Earth icon and release the Control key. Now click on the unlock button to view Internet Explorer 4.0's team of programmers.

### EASTER EGG WEB SITES

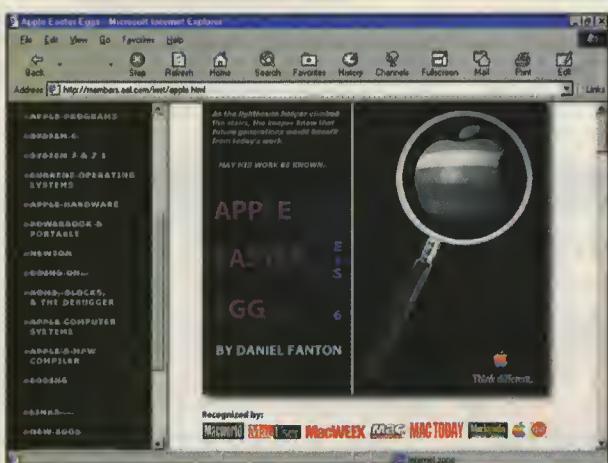
Nearly every program, especially games, have Easter Eggs buried somewhere in the program. Rather than trying to find them yourself, visit a Web page that lists the more common Easter Eggs along with explanations for viewing them and ratings for the more interesting ones.

One of the most comprehensive Easter Egg Web sites is the Easter Egg Archive ([www.eeggs.com](http://www.eeggs.com)), which thoughtfully organizes Easter Eggs by computer (IBM, Macintosh, or Unix), by categories (applications, games, operating systems, and hardware), and by their value (ranging from a low of one to a high of five for a truly interesting and unique Easter Egg).



Less organized and comprehensive, but still useful, is the Easter Egg Page ([www.htsoft.com/easter](http://www.htsoft.com/easter)), which may provide Easter Eggs that the Easter Egg Archive may have missed.

For Macintosh users, skip the above web sites and go directly to the Apple Easter Eggs Web site (<http://members.aol.com/ixist/apple.html>). Not only can you find Easter Eggs for Macintosh and Newton programs, but also for specific versions of the Macintosh operating system as well as Apple modems, printers, PowerBook models, and CD-ROM drives.



To keep up with the latest Macintosh Easter Eggs, visit the MacOmelet Web site (<http://members.aol.com/BergerD/index.html>), which is usually the first to publicize the latest Apple Easter Eggs.



## MAKING YOUR OWN EASTER EGG

After spending time viewing the Easter Eggs of others, you might be tempted to create one of your own. Rather than spend the time to come up with an interesting Easter Egg by yourself, visit the Digital Objects Software Web site ([www.mrdo.com](http://www.mrdo.com)) and download their VBPong program.



VBPong contains Visual Basic 5.0 source code that lets you display a Pong arcade game within your own Visual Basic program. You just need to write the secret keystrokes or mouse clicks that will activate the VBPong game, and you'll have a sophisticated little Easter Egg with hardly any work at all.

Best of all, VBPong is freeware, so you can use, give away, or distribute it in any future Visual Basic programs you write. If you really want a challenge, try linking the VBPong Visual Basic source code to your C++ or Delphi programs and see if your Easter Egg eventually makes it into one of the Easter Egg archive Web sites.

Easter Eggs just show you that programmers have a sense of humor and will spend more time debugging and testing their Easter Eggs than the actual application that it's buried in. Despite the official protest of corporate executives and managers that Easter Eggs have no place in a business application, Easter Eggs are fun and amusing for nearly everyone (except for the before mentioned corporate executives and managers).

If you really want to get revenge on your company, try writing an Easter Egg that displays a digitized photograph of your boss wearing a dress or making love to a donkey. Or make an Easter Egg that displays secret documents that may later prove embarrassing to certain individuals in your corporation. Easter Eggs let you be as creative as you want, which can make an ordinary programming job actually seem like fun again. ♦



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**Cyclades Corporation:** Designs, manufactures and markets connectivity products: Multiport serial cards, routers, communication adapters and re-*move* access servers. Cyclades supports UNIX and Linux, Window NT/Win95, BSD-derived markets, SCO, DOS, and Fossi for most of our products.

The image shows the BSD logo, which consists of the letters 'BSD' in a large, bold, green serif font. Below it, the words 'BROADBAND SOFTWARE DESIGN, INC.' are written in a smaller, green, sans-serif font. Underneath that, the tagline 'Powering the Networked Economy' is displayed in a green, italicized, serif font. The background of the logo features a stylized graphic of a globe with a network of lines and dots, suggesting global connectivity.

<http://www.bsd.com>

**Berkeley Software Design:** The most complete Internet server software includes Netscape FastTrack Web server, Apache Web server, News Server, mail server, FTP Server and more. Over 2,500 ISPs worldwide and Fortune 500 companies rely on BSDI for top web and Internet/Intranet power and stability. No additional OS to buy. Installs in minutes and features GUI configuration manager.

[http://www.newsnerds.com/  
boardwatch.htm](http://www.newsnerds.com/boardwatch.htm)

**Newsnerds International** provides virtually all types of Usenet news feeds for ISPs and large organizations. Redundant T-1s and peering arrangements that provide coverage of all the major news sources insure that Newsnerds is the best Usenet news source for the budget conscious system administrator.

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"They're the ones that the rest write to," Linux Against Microsoft, the Linux Against Microsoft is the largest Linux and open source conference in the Americas. Over 1000 people from over 20 countries will be attending.

More details will be posted later as more become available, check back frequently for updates.

*The 1998 Atlanta Linux Showcase is a joint effort representing the Atlanta Linux Showcase 1998, West Group, with assistance from the Atlanta Linux User Group, Inc. Single printing and/or a copy of our public listing distributed entertainment are single writing license holders.*

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<http://www.ale.org/showcase/>  
Annual Atlanta Linux Showcase, Conference and Exhibition. Friday October 23 and Saturday October 24, 1998 in Atlanta, Georgia (during NetWorld+Interop 98). Two full days of technical and business Linux talks and vendor shows.

The logo for AGIS (Apex Global Internet Services) features the word "AGIS" in a bold, serif font, with a purple dot above the letter "i". Below "AGIS", the words "APEX GLOBAL" and "INTERNET SERVICES" are stacked in a smaller, sans-serif font.

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# DVORAK ONLINE

by John C. Dvorak

## PORTAL MANIA AND OTHER NUTTINESS

If it's not one thing it's another when it comes to Internet fads that are threatening to send the stock market to infinity. Each and every one of these "fads" has come and gone leaving disappointed shareholders in its wake. First there was Push technology and PointCast boosted as if the entire world was waiting for these things. E-commerce is another button that gets people hot and bothered. Remember when the phone companies were going to get into the act and all the ISPs were going to be out of business in six months? How wrong can people be? The cable modem finally is showing up after years and years of waiting and where are the customers? So what's the latest in this string of losing propositions?

One of the most interesting developments has been both the sudden number of new players in the search engine game (hundreds) just as the search engine pioneers are trying to find ways to bail out. Actually they don't want to bail out they want to become "portals." This is rich.

Portals are a long-term joke. At some point people will realize that they can do a better portal themselves than what Disney or AOL will ever give them. And who wants an advertisement upon opening a browser? I sure don't.

Browsers immediately load the default home page upon execution. Apparently the public needs to be educated regarding how this was originally designed. How many of you out there reading this ever click on the "HOME" button at the top of your browser to reload your personal portal? How many even have one?

For an example go to [www.dvorak.org/home.htm](http://www.dvorak.org/home.htm) and for more information go to [www.dvorak.org/more.htm](http://www.dvorak.org/more.htm) and see how this works.

The idea is to take a page of your most used links and write a small HTML program to load the page at boot-up. It takes five minutes. And the key is that you load it from drive C:\ not the Web itself as it pops up instantly. I personally find it annoying when I execute the browser to see it go on to the Web to start loading a page I probably don't even want to see. And then there are the sneaky companies such as AOL that change the default home page to theirs.

What the commercial portals do offer is updated news, weather and streaming sports scores along with plugs for their various features. This comes along with a lot of advertisements. With Active Desktop on

Windows 98 you can have your desktop update all this crap on your wallpaper as part of the operating system. There is no reason for a portal site to exist. This recent portal excitement, which was largely triggered by NBC's buying into C-Net to get Snap, will be yet another fiasco once people actually start to understand how to do their own personal portal.

The key to understanding this is the Netscape portal/homepage itself. Still the default for most people using Netscape, it gets hundreds of millions of hits per week. Most people click through faster than the site can load. The irony here is that I think Netscape originally assumed that people would use the HOME button to go to their own HTML links page. I say this because the company did nothing, it seems, to make money from the millions of hits it was receiving everyday. Originally the site had no banners or any advertising. This was especially true during the early days when the banners ads were expensive to buy and could have been quite profitable for Netscape.

As Netscape became more of a follower than a leader, the company got jazzed about the notion of being a default portal for Netscape users. SO they came up with a plan to provide exclusive news from ABC and other features from other singular sources. They tried to make this fancy then simple and everything in-between. Currently you'd think you were on AOL when you go to its site.

Excite is worse. What started out as a credible search engine is now a full featured news and reviews site that, like the rest of these portals, is customizable. It's when you actually begin to customize these sites that you realize that the process is not easy and you end up with a mess. For example with Excite they have a special "customizable" section so you get your "favorite" columnist handed to you daily. But this is a ludicrous joke when you see the list of a meager eight columnists, and two of them aren't even columns. You can choose from Dave Barry, The SF Chronicle Editorial, Suck.com, The Spot, "Dave Letterman's Top 10 list," Scott Ostler, Mitch Albom and James Coates. What kind of a selection is this? Worse is that these portals pretend to be newspapers for idiots. The Excite site has a number of decent news stories which are dubiously categorized under "Oddly Enough." At the top of the page I was reading when reviewing this site was a story about an E-Coli outbreak in Chicago. How can a food poisoning outbreak be categorized as "Oddly Enough?" Do the editors think it's wild and wacky that the food supply is tainted with E-Coli? These people are simply off center with this kind of judgment.

This is what bothers me about the portals more and more: dubious judgment. Taking a bunch of computer geeks and giving them the responsibility to do a news-centric portal site is hopeless when they have to compete with real newspaper people. When the *San Jose Mercury* or *Nando* takes their respective websites and turn them into portals who will go to Excite with its Mitch Albom column and serious news covered as "odd?" portals like this have no future because they are like subscribing to free bad newspapers. Even if they are free you don't want them.

In fact this is why the recent buy-in by NBC of Snap is so peculiar. NBC has much more resources than CNET, the developers of Snap, and could easily turn the MSNBC or the NBC site into a serious portal. Apparently the company is totally clueless. I talked to a couple of people at CNet about this and one argued that they were really buying the great underlying technology. The other thought Snap was a loser.

Eventually people are going to realize that it's just better to make up a good portal page and drop it on drive C. The one I did is in 100 percent text for instant loading from the Web itself, but for something coming off drive C:\ you can fancy it up without losing performance.

Even given the bonehead user who will never figure out how to do his or her own little page the portal sites must worry about the AOL gambit where a portal default is usurped by a competitor. Anyone can do this. At some point the smallest of sites will become portals. By then, of course, the fad will be over and we'll be on some other bandwagon to oblivion. ♦

## RECIPE NOOK THOUGHTS ON LOBSTER

Lobster is one of the great foods of the world and by lobster I mean only one kind of lobster: Maine lobster. This lobster is the best tasting in the world and does not seem able to transplant. Accept no substitutes. The best Maine lobsters are eaten in the New England area. If they are shipped, then they should be shipped and eaten immediately. Those stored in tanks of water for extended periods begin to pick up the flora of the local area and change in varying degrees.

Some people who are allergic to shellfish can eat Maine lobster in Maine but not in California once it's been put in a tank. I have followed this phenomenon closely and would appreciate any people out there who have also observed this. My wife, Mimi, cannot eat Langoustines or any other lobster except Maine without getting deathly ill and she can only eat the Maine lobster in and around New England. It's weird but true.

Buying and cooking Maine lobster has a lot of folklore around it. Typically the two rules are: 1) Females are better than males (have an expert show you the difference). 2) Choose a hard shell lobster not one in a new softshell. You get more meat.

As for cooking, the lobster is typically boiled alive. I know one fellow from Maine who puts them in cold water and turns up the heat so they get put to sleep as the temperature rises. This takes a high BTU stove unless you want to wait a long time. Also the cooking times have to be adjusted by trial and error.

The best advice regarding this technique comes from The Maine Lobster Company at [www.mainelobsterco.com](http://www.mainelobsterco.com). They say to put the lobster on its back for a while to put it into a light sleep (beta) mode then slowly place it in the water and heat it up. But still more fascinating is this tip:



*Maine Lobster Company: We always recommend that if you ordered live lobster, you cook them while they are still alive. There has been much debate outside of the industry about this. Some have thought that it may not be humane to place live lobster in a pot of boiling hot water. This is not believed to be so within the industry however.*

*A humane method which is especially good for baking (as well as boiling and steaming) is:*

*Place lobsters in a paper bag. Place paper bag (with lobsters inside) in your freezer for 10 minutes. Take lobsters out of freezer and bag after 10 minutes and cook as you normally would cook live lobster. This places lobster in the deeper sleep mode (theta state).*

*This is highly recommended for two reasons:*

*The lobster will not produce the usual release of bitter chemicals produced from the shock of being put in hot water. They will be completely in a relaxed sleep state and will feel no pain.*

*And as a result of not producing these chemicals, the meat will tend to be sweeter and more tender. So now you can enjoy your lobsters without even a hint of guilt.*

Lobsters are boiled for about 15 minutes a pound. When you travel through Boston, pick up a couple and the airline will let you slip them under the seat in those special boxes. They're great. If you never get to Boston consider shipping some out from Maine Lobster Co. or the many lobster shipping companies. ♦



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— see page 9

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*Jack Rickard*

Rickard  
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# Registration Form

September 28 - October 1, 1998

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Register Online at [www.ispcon.com](http://www.ispcon.com)

Mail or fax with payment to: ONE, Inc., ISPCon Registration,  
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# An Invitation

## to the Fall 1998 Internet Service Provider Convention ISPCON Fall '98



We are most pleased to invite you to the 1998 Internet Service Provider Convention (ISPCON), September 28-October 1, in San Jose, California. ISPCON has emerged as THE meeting place for Internet service providers and national backbone operators, as well as the technology companies that tool and enable them. Our Fall '98 West Coast event, in the heart of Silicon Valley, already promises to be the largest event we've ever held with over 5,000 Internet service providers, CLECs, RBOCs, cable operators, telecommunications resellers, and an assortment of venture capital firms and media quite beyond anything we've ever organized.

### Jack Rickard

And we'd like you to come.

Over the past year, the very definition of Internet service provider has become a bit frayed as satellite companies, local telephone companies, wireless companies, cable television companies, telecommunications resellers, and others have determined that Internet access and packet networks are a "must have" component of any communications product mix. All of telecommunications threatens to evolve toward providing access services to a global packet network known as the Internet. And the resources brought to bear on such problems as bandwidth to the home, connecting small- and medium-size businesses, deploying voice over the IP network, quality of service guarantees, virtual private networks, caching and performance are almost mind boggling to contemplate at this point. Representatives from every major company in every one of these segments are expected at this Fall's ISPCON in San Jose.

As both the technologies and the business models for Internet communications access evolve almost minute by minute in this firestorm, the importance of gaining a rational, informed perspective on what the future holds for us all in Congress, and for each individual business planner and implementer, takes on gargantuan proportions. The slightest edge in intelligence on where and how to participate can literally mean

the difference between life and death for many of these companies - not in twenty years, but in two years.

There is currently no noticeable shortage of Internet-related trade shows. But most are designed to appeal to the mass of Internet users. ISPCON has succeeded as the ONLY trade show designed for Internet service providers - the people who make the network run and provide access to those customers. We've encountered such success that virtually all of the larger Internet shows have tried to lay claim to the ISP market with pavilions, special tracks, event stunts, etc., to persuade exhibitors that they have a serious contingent of ISPs attending their shows. But they apparently failed to mention it to the Internet service providers themselves. ISPCON is designed for those serious about providing Internet access either for profit as part of a communications product line, or internally in their companies.

The result is a smaller, more focused show that is NOT particularly open to the general public. If you are not involved in provisioning Internet access services, building national networks, helping companies successfully make the connection or designing the technical and server end of Web hosting/development, you will undoubtedly find ISPCON chaotic, technical, and confusing. In a word - stay home. You'll clutter the action for those faced with the mammoth task of building and extending a network and doing so at a profit for their businesses. This show is for ISPs.

In the past two shows, we have had some notable participation from a second group. We call them "Internal ISPs." These are the technical implementers within medium to large businesses who maintain a connection to a public backbone or service provider and almost immediately wind up providing identical services to various entities within the corporation. We used to say they were ISPs without the billing problem. As it turns out, we were even wrong about the billing problem.

As always, ISPCON is an intensely educational meeting event. We have scheduled over 150

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## METHOD OF PAYMENT

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Name on credit/charge card \_\_\_\_\_  
 Account # \_\_\_\_\_ Exp. Date \_\_\_\_\_  
 Signature \_\_\_\_\_

Check Enclosed. Please make payable to Lee Travel Group

## IMPORTANT NOTES

A deposit is required for each room reservation. Check must be included with housing forms received by mail. If housing form is faxed or booked online, check must be received within seven (7) days of reservation or room(s) will be released. Some hotels may charge your credit card immediately. Reservations received by mail must be postmarked by August 17, 1998; after this date, rooms or rates cannot be guaranteed. Room assignments will be made in order of receipt. If all hotel preferences are not available, you will be assigned the closest available hotel. If rate requested is not available, the next available rate will be assigned. All changes or cancellations must be made to Lee Travel in writing before September 23, 1998. After this date you must cancel your hotel directly.

## HOTELS

The following hotels offer special rates to ISPCON Fall '98 exhibitors and attendees. Please contact Lee Travel Group to make your reservations. You must mention ISPCON to get the special rate.

## San Jose Hilton and Towers

Rate: \$183.00 Single/\$198.00 Double  
 \$295 Exec. Suite/\$395.00 Hosp. Suite  
 Addl. Prsn. \$15 Towers Upgrade \$25  
 Amenities: Cable TV and Internet access, exercise room, outdoor swimming pool and hot tub, business center, coffeepot, iron, ironing board, blow dryer, connected to the Convention Center, parking: \$7.00/day

## Crowne Plaza San Jose

Rate: \$159.00 Single/Double  
 Amenities: Cable TV, Internet access, health club, iron, ironing board, blow dryer, coffeepots, two phone lines and data ports, across street from Convention Center

## Hyatt Sainte Claire

Rate: \$180.00 Single/Double  
 Amenities: Historic architecture, cable TV, exercise room, service bar, coffeepot, iron, ironing board, blow dryer, room computers, down comforters, across the street from Convention Center

## The Fairmont Hotel

Rate: \$189.00 Single/\$209.00 Double  
 \$400.00 1 Bdrm. Suite  
 \$550.00 2 Bdrm. Suite

Addl. Person \$25

Amenities: Cable TV, in-room fax machine, modem at 9600 baud rt. voice mail, iron, ironing boards, hair dryers, fitness center, heated swimming pool, one block to Convention Center

## Hotel De Anza

Rate: \$145.00 Single/Double  
 \$375.00 Suites  
 \$1,300.00 Penthouse

Amenities: Historic architecture, purified ice & water, cable TV, three phone lines and data ports, exercise room, service bar, coffeepot, iron, ironing board, blow dryer, 24-hour complimentary "Raid the Pantry," three blocks to Convention Center

## Hyatt San Jose

Rate: \$175.00 Single/Double  
 Amenities: Selected rooms w/personal computer, fax, printer & high-speed Internet access, heated pool & spa, cable TV, complimentary parking and airport shuttle, two restaurants. Room rate includes a daily pass on the light rail for a 15 minute ride to the Convention Center

## Best Western Inn

Rate: \$70.00 Single/Double  
 \$80.00 Double/Double

Amenities: Free parking, complimentary continental breakfast, two blocks from Convention Center

**Various cancellation and change policies apply. Please refer to your written acknowledgement from Lee Travel Group.**

percent of WorldCom's total revenues and over half of their growth comes from Internet access services. In a \$37 billion proposed merger with MCI, Sidgmore inarguably presides over the largest Internet access business in the world. He's dealt with every aspect of the Internet business from a startup, through funding, growth, an initial public offering, more growth, acquisition by WorldCom, more growth, government review of business mergers - literally everything that can happen to an ISP has happened to him. His views on the future of the network, the future of the Internet access business, and the future of technology, will likely directly affect what that future ultimately is.

And long time industry pundit John C. Dvorak has agreed to join us for our opening session festivities this year. Dvorak has one of the longest running and mostly widely followed columns in

computer journalism in *PC Magazine*, and has also commented on the online world as the final word in each issue of *Boardwatch Magazine* for a number of years. His acerbic wit, and unavoidable skepticism born of nearly 20 years of watching products and fads come and go across the personal computer space make for a thoroughly humorous and usually profoundly informing presentation that boils the hurricane of confusion surrounding this space down to some common sense rules that all products and all services must follow to succeed. Dvorak masters the maxims and rules of thumb for success in the high-tech world with such authority that he remains the most widely read computer columnist on the planet.

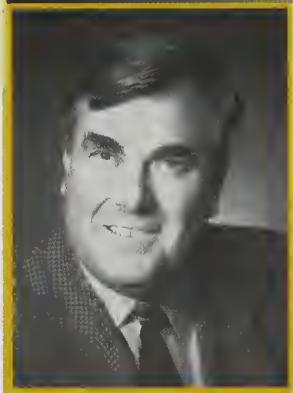
Finally, we have Dave Barry, one of the funniest commentators on all things in life, but particularly on the Internet and World Wide Web. As a humor colum-

nist for the *Miami Herald* newspaper, Barry gained national acclaim through a series of syndicated columns appearing in newspapers around the country, a series of humorous books, and more recently via the World Wide Web with his own Web site competing with dozens of Dave Barry Fan Club Web sites across the netscape.

Major sponsors of ISPCON include Sun Microsystems, Intel, Hewlett-Packard, and 3Com Corporation, who will lead an exhibit floor of some 55,000 square feet that includes essentially every vendor tooling and enabling ISPs planet-wide. This is the smallest, most focused single show most of these companies exhibit at, but they do so with great enthusiasm at ISPCON.

Again, the Fall '98 show in San Jose is already shaping up as the largest we've ever cobbled together in one place and

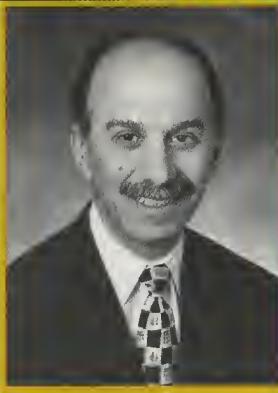


**Bruce Sinclair**

Director, President and CEO  
WaveRider Communications, Inc.

**Bruce Sinclair** is an industry leader who brings 20 years experience in the field of high-technology management development, organizational re-engineering and international sales and operations. The former president of computer giant Dell Canada and CEO of Dell Europe, Sinclair was instrumental in growing European sales from \$250 million to over \$1 billion in an two-year period for Dell Europe. With an MBA from the University of Toronto, Sinclair has worked in North America with several high-technology companies, including IBM Canada, Northern Telecom and Harris Systems Ltd. WaveRider Communications, Inc. is poised to become an international industry leader in wireless Internet access technology through the introduction of high-speed, low-cost alternatives to traditional "hard-wired" Internet service. WaveRider is developing wireless Internet network systems to provide corporations and consumers with high-speed worldwide connectivity. With an executive team experienced in directing and managing rapid growth and leading-edge R&D as well as developers and designers with a track record in achieving technological excellence, WaveRider has an outstanding foundation for its new Last Mile Solution wireless products.

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**Don Telage**

Senior Vice President  
of Internet Affairs/Director  
Network Solutions, Inc.

**Jeff Thomas**

President  
WebNexus  
E-Mail: [jeff@corp.Webnexus.com](mailto:jeff@corp.Webnexus.com)

**Jeff Thomas** founded WebNexus and has more than 10 years experience in software engineering for LAN products. WebNexus is a three-year-old company providing contract LAN support, Web presence and Internet access to companies and individuals occupying multi-tenant buildings throughout the San Francisco Bay area.

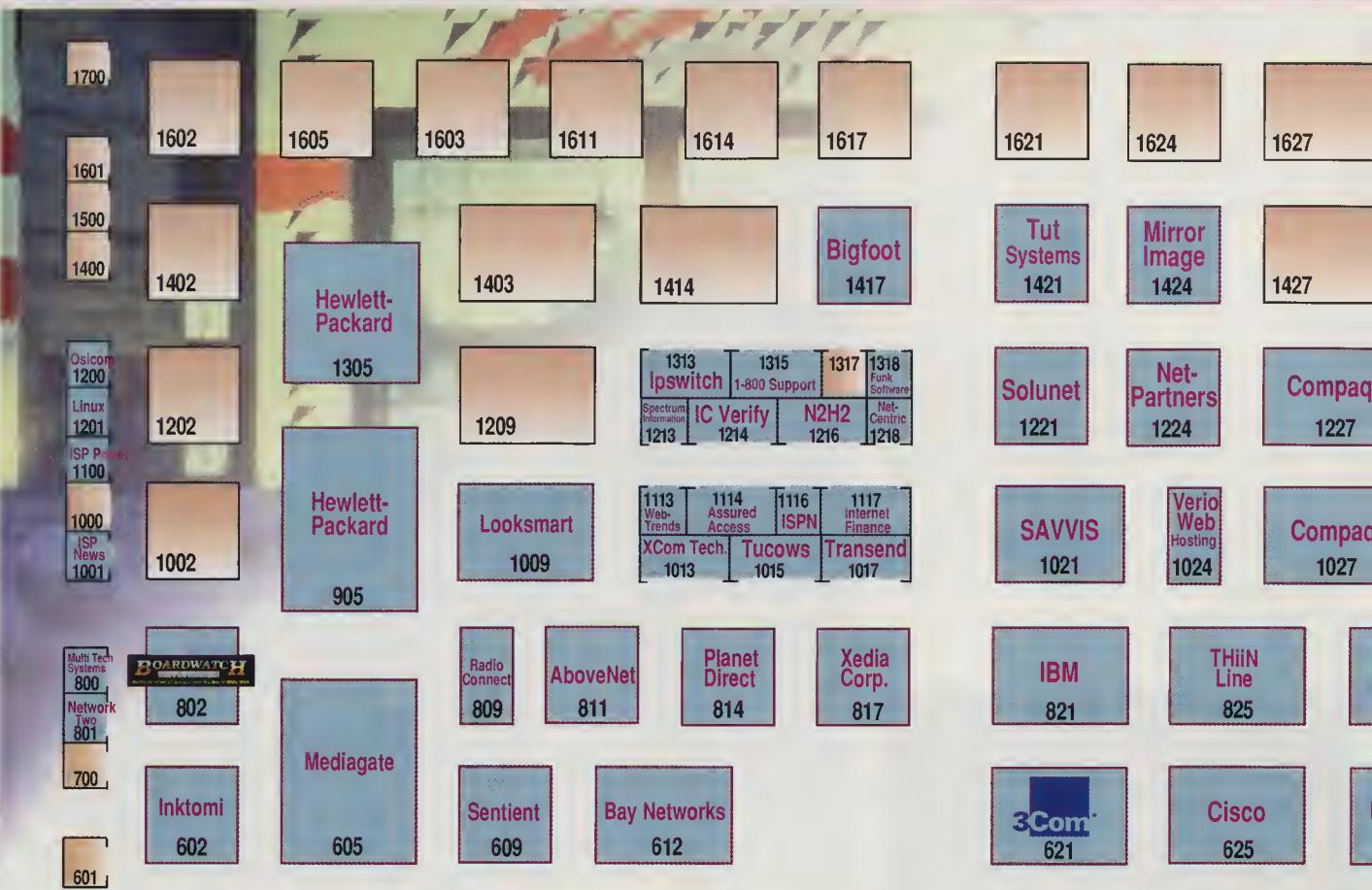
**Ray Solnik**

Vice President of Business  
Development & Strategy  
Pacific Bell Internet/Southwestern Bell

**Ray Solnik** is vice president of business development and strategy for Pacific Bell Internet Services (PBI) and Southwestern Bell Internet Services (SBIS). Solnik has negotiated and entered into agreements with several companies, including AOL, Netscape, Microsoft, Sun Microsystems, various Internet appliance companies, and multiple Internet service providers. Solnik has been in the Internet business since November 1995. PBI and SBIS (SBC Internet Companies) have a particular focus on growth opportunities, new business models, and ways to "evolve" the Internet revenue model by increasing revenues per customer. Before this, Solnik was director of business development and strategy as well as senior product manager for Small Business Markets at PBI. He has a broad set of experiences in the field of new business and start-up environments. Solnik has an MBA from the Stanford Graduate School of Business and a BA in economics from the University of Michigan in Ann Arbor.



# EXHIBIT FLOOR



Booth No.	Company Name
1232	.comfax
1315	I+800 Support
621	3Com Corporation
811	AboveNet
1131	AccuWeather
1133	Acucomm
638	Alteon Networks
1238	Andromedia
440	Ascend
1114	Assured Access
1331	Balboa Capital
612	Bay Networks
1417	Bigfoot
802	Boardwatch Magazine
1035	C & W Leasing
632	CacheFlow
625	Cisco Systems
1027	Compaq
1231	DPEC
534	Dun & Bradstreet
1236	Eagle Communications
829	Fine Point
1318	Funk Software
528	GRIC Communications

Booth No.	Company Name
436	GTE
1431	Hallmark Computers
905	Hewlett-Packard
1305	Hewlett-Packard
821	IBM
1214	IC Verify
424	Icon CMT
602	Inktomi
609	Sentient
1337	Interpacket Group
1313	Ipswitch
1100	ISP Power
1116	ISP News
1001	Looksmart
1009	Lucent Technologies
645	Manner Int'l.
433	Mediagate
605	Mirror Image
1424	MovinCool/DENSO
1445	Multi-Tech Systems
800	Multipoint Networks

Booth No.	Company Name	Booth No.
1216	N2H2	1338
1218	NetCentric	609
245	Netopia	1033
1224	NetPartners	1034
801	Network Two	1132
430	Internet Factory	428
249	Interpacket Group	Nokia
1317	Ipswitch	428
1200	ISP Power	528
1454	ISP News	GRIC
814	Looksmart	428
1136	Lucent Technologies	SkyCact
629	Manner Int'l.	428
809	Mediagate	428
1233	Mirror Image	428
1139	MovinCool/DENSO	428
1021	Multi-Tech Systems	428
1235	Multipoint Networks	428
1039	Seattle Lab	428



**President and CEO**  
Alteon Networks

**Dominic Orr** is president and chief executive of Alteon Networks. Orr joined Alteon in November 1996, with more than 20 years of experience in the computer networking industry. Previously, Orr was senior vice president at Bay Networks. He held overall responsibility for product management, development and marketing within the company's intelligent hub product business unit. At Bay, Orr had specific duties of defining new business and market segments, establishing overall product architecture, application and system strategies and business/product partnerships. Orr was directly responsible for Bay Networks' acquisition of Centillion and Armon as well as the creation of Bay Networks' NETGEAR subsidiary for the SOHO network market.

Before joining Bay, Orr spent 12 years at Hewlett-Packard with his last assignment as director of marketing and product operations in Asia Pacific for HP's Computer Systems organization. Orr's other positions within HP include general manager in Asia Pacific of the Information Networks Group.

Before HP, Orr was with Hughes Aircraft where he led the design and implementation of the first large-scale local area networks for the Radar Systems Group. He holds a bachelor of science degree in physics from the City University of New York and a master's of science and Ph.D. from the California Institute of Technology. Orr is 45 and was born in Macao in South China.



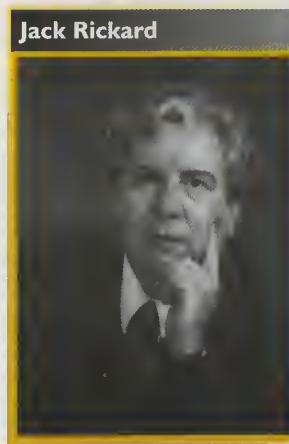
**President**  
Networks Telephony Corporation

**William E. Perren** is president of NetWorks Telephony Corporation. He was previously responsible for developing sales strategies to meet the needs of multinational customers at Infonet Services Corporation. Perren also served as executive vice president for Business Strategy and Technology and president of Development and Operations, responsible for network operations and computing on a worldwide basis. Before joining Infonet, Perren spent 23-years at IBM and oversaw all hardware and software service in the western United States, Hawaii and Far East. Prior to joining NetWorks as president, Bill Perren presented at the annual Yankee Group outsourcing conferences, Global Internet Conference in Australia 1996, and presented customer briefings for multi-national corporations throughout much of his career with both Infonet and IBM. Perren holds a BA in business administration and an MA in business administration from the University of Southern California.



**Director of Marketing**  
TUCOWS Interactive Limited

**Ross W. Rader** is the director of marketing for TUCOWS Interactive Limited. TUCOWS not only runs one of the busiest Web content services in the world, but also runs Canada's largest privately held Internet service provider, Internet Direct. Rader has been speaking at various Internet events for the last five years and has been quoted on various Net issues in such publications as *Wired*, *The New York Times*, and the *Toronto Star*. Educated at the University of Winnipeg, Rader has been working with TUCOWS since 1993. Rader is currently managing the deployment of the firm's first large-scale e-commerce project; a software delivery service employing wholly automated, real-time transaction processing and fulfillment systems.



**Editor Rotundus**  
Founder of *Boardwatch Magazine* and ISPCON

**Jack Rickard** is a columnist with and editor rotundus of *Boardwatch Magazine* and *Boardwatch's Directory of Internet Service Providers*. He is also creator of the Internet Service Providers Convention (ISPCON). Before founding *Boardwatch Magazine*, Rickard spent 12 years developing communications and electronic technologies for the defense and aerospace industries with McDonnell Aircraft Corporation, Emerson Electric Electronics & Space Division, Martin Marietta Denver Aerospace and Martin Marietta Data Systems.



ISPCON made its name by offering substantive educational sessions presented by the industry's knowledgeable elite. Here is a roster of sessions from ISPCON Spring '98. You can expect an equally compelling program at ISPCON Fall '98. For more in-depth information on the Fall '98 show, visit the ISPCON web page at: [www.ispcon.com](http://www.ispcon.com).

The Commercial Internet — Peering into the Future  
 Root Name Server Operations and DNS Security  
 Delta Encoding and Data Compression for HTTP  
 The Realities of IP Telephony  
 Internet Expansion  
 Shedding Light on the FCC Black Hole  
 SkyCache — Moving the Web to the Edge of the Network  
 VPN — The "Dial Tone" for New ISP Services  
 Lowering the Total Cost of Ownership (TCO) of Remote Access  
 Servicing Your Terms of Service Agreement  
 Web Hosting — Improving Quality of Service  
 Training — An ISP Profit Center  
 Monitoring Your Customers  
 IPv6 — Is It Really Going To Happen?  
 Global Reach, Local Touch — Investing in Overseas Markets  
 Load Balancing and Performance Analysis as Hosting Options  
 Web Analysis for High Volume, Mirrored Web Sites  
 How Broadband Can Attract Profits  
 The MilliCent Microcommerce System  
 New Models for Peering I  
 IBM Internet Solutions: The Olympic Experience  
 The Making of the Next Generation Telco  
 Culture Shock — The Cultural Demand for Bandwidth  
 Supplementing ISP Bandwidth with Half-Duplex Satellite  
 The Emerging Backbone Infrastructure  
 Scaling Internet Bandwidth for Tomorrow  
 Secure Virtual Private Networks  
 International Bandwidth Math  
 Sue the Baby Bells  
 Strategies for Building NT Web Applications  
 Catching The Public Eye — Virtual Private Networks  
 Managed Broadband Access and Bandwidth Services  
 How Much Downtime Can You Afford?  
 How Do I Really Profit from What Lies Ahead?  
 Service Levels — Different Strokes for Different Folks  
 Protecting Your Customers From Online Fraud  
 Alternative Network Architectures  
 Marketing Programs for the Service-Directed ISP  
 New Models for Peering II  
 Privacy Panel  
 Directory-Enabled Network Infrastructure and LDAP  
 Motivations for an ISP to Offer Internet Telephony  
 Online...All the Time  
 Fast Rewind — A History of the Modern Net  
 Hit Me! The Implications of Active Web Caching for ISPs  
 Access in the Next Millennium  
 Becoming an E-Business ISP  
 A New IP Platform for Service Providers  
 Frame Relay — Answering the Need for Speed  
 ABCs of Advertising for ISPs

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Expanding Your Small Business Opportunity  
 Why Should Your ISP Become a CLEC?  
 How ISPs Can Protect Themselves from Spam  
 Business on the Internet: IP Quality of Service  
 TCP Grooming for Optimal Network Efficiency  
 Differentiation Through Enhanced Remote Access Services  
 Building an ISP with a Centralized POP  
 Strategies to Gain a Competitive Edge  
 25 Ways to Bring Cash into Your ISP I  
 Providing Business Internet Access in Multi-Tenant Buildings  
 IP-Communications — The Computer Industry Point-of-View  
 IP Telephony Now  
 Value Added Service — The Future Is Now  
 Hot Network Caching Technologies  
 Secure VPNs — Enabling ISP Services  
 Setting Up Your Own AltaVista Search Site  
 Backbone Routing Policy  
 Cyber Crime and Law Enforcement I  
 The Logistics of Wireless Internet Access  
 Internet 101: Packets, Routers, LANs and WANs  
 Business Critical Services — Insuring your Uptime  
 Do Thin Clients Need Thick Servers?  
 IP Multicast and your Future  
 To Outsource or Not to Outsource, That is the Question  
 Routing the Future — Massively Parallel Routing Technologies  
 Universal ADSL and its Impact on the ISP Market  
 Sendmail 8.9: the Spam Management Release  
 25 Ways to Bring Cash into Your ISP II  
 Truth in Numbers: The New ISP Value Paradigm  
 Selecting an IP Telephony Platform  
 How an ISP Can Make Money Selling Internet Telephony Calls  
 RBDC Panel I  
 Multi-Tiered Transparent Web Caching  
 VPNs — Reducing Customer Service Costs  
 CGI? SSL? API? SSS? What?  
 Utilities as "Community Service Providers"  
 Cyber Crime and Law Enforcement II  
 Tuning Internet Servers  
 Internet 201 — Clients, Servers, and Other Delights  
 What Business Customers Want in an ISP  
 Becoming One of the Best Run ISPs in the Industry  
 Building An ISP Infrastructure To Generate Cash  
 Managing Commercial Web Sites With Intrasite Visitor Data  
 Designing an ISP for Scalability and Reliability  
 Rentable Apps — Generate Revenue with Domino InstantHost  
 Everything an ISP Wants To Know About Marketing and More  
 Becoming a Competitive Local Exchange Carrier  
 Installing and Configuring Apache and FastTrack Web Servers  
 Internet Telephony — Opportunities and Challenges for ISPs  
 Bridging the Net with Intelligent Dialtone Services

RBOC Panel II  
 Caching and Distribution Systems  
 New Carrier Based Services  
 Intelligent Compression  
 Internet through Satellite Terminals  
 Routing at Gigabit Speeds  
 Cyber Crime and Law Enforcement III  
 Usage-Based Billing — Increased Profits and Customers  
 Dynamic Database Driven Web Sites  
 Reducing Bandwidth Costs with Distributed Proxy  
 Online Gaming as an ISP Branding Strategy  
 Moving Technology into the New Millennium  
 Partnering with Media Companies to Turn Profits  
 Guerrilla Marketing Seminar — Round 4  
 ATM and the Internet  
 ISP Marketing I  
 Dial, The Next Generation; New Services, New Profits  
 Driving or Dragging? The 411 on Internet Telephony Standards  
 Building Your Service-Driven Network  
 InfoLibria Launches Breakthrough DynaCache Product  
 Reducing WAN Complexity With New Remote Access Capabilities  
 Nationwide Wireless Internet — Application Development  
 Internet Enhanced Service Provider  
 Defining Web Hosting Performance  
 Junk Mail 98 — The Growing Smell of Spam  
 Designing a Scalable Infrastructure for Mail  
 Gluing the Internet Together — Current Exchange Trends  
 Creating an Internet to Pager Gateway  
 Cryptography on the Web  
 Usenet News — Tuning To Survive the Current News Glut  
 Fax Over IP — A Collision of Worlds  
 ISP Marketing II  
 Business-Grade Electronic Commerce Services  
 Internet Telephony  
 Migrating Telco Services to the ISP  
 The Future of Sendmail: B.10 and Beyond  
 International Bandwidth Challenges (Caching) I  
 VPN Scenarios — Which is Right For You?  
 Connectivity in the Third World — Life in the Tropics!  
 Building a Small ISP from Scratch Using Linux  
 Building an Effective Partnership with Your Telco Provider  
 The Business Case for the Wireless ISP  
 Insurance and Risk Management for ISPs  
 Personalized Service for Competitive Advantage  
 Routing Inefficiencies in Today's Internet  
 Scalable Products for Your Network Evolution  
 Smart Money's Best Regional Internet Services Provider  
 Just the Fax  
 E-mail Too Big To Handle?  
 ISP Marketing III  
 Transforming the ISP with Telephony Service  
 New Business Model: Value-Added Computer Telephony Services  
 Sendmail Q&A  
 International Bandwidth Challenges (Caching) II  
 The ISP and Virtual Private Networks  
 Internet Initiatives Via Satellite  
 Voice and Fax on the Internet — The ISP's Expanding Role  
 Reciprocal Compensation? The Cost of Transporting Internet  
 Internet Broadcast — How To  
 Expanding Your Small Business Market Opportunities  
 Beat the Chicken/Egg Syndrome — How to Market a Complex Biz  
 SNMP — Use it or Lose it  
 Business Planning for ISPs

**Jim Hollis**

President & Founder  
Internet Finance & Equipment

**Jim Hollis** is president and founder of Internet Finance & Equipment. He focuses his company on the business aspects of running a successful ISP through cash flow improvement programs. Hollis's understanding of the Internet industry and knowledge and experience of technical and business issues, provide him with unique market strategies. Hollis continues to work exclusively with more than 500 local and regional ISPs to help them compete against the big players. Hollis brings to Internet Finance & Equipment over 20 years of business experience. Hollis has worked for some industry leaders in electronic commerce products and services where he achieved high acclaim for sales and consulting. These include Tandem Computers (now Compaq Computers) where he was responsible for launching Tandem's Internet strategy. Hollis received his BS in business education from Western Illinois University in Macomb, Illinois.

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**David Holtzman**

Senior VP of Engineering  
Network Solutions Inc

As senior vice president of engineering, **David Holtzman** is responsible for the operations and technological development of Network Solutions' domain name registration services. Since he joined NSI in February 1997, Holtzman has been responsible for making his company's operations center into a world-class 24 x 7 network information center; developing software and maintenance methodology and defining a new product line.

**Ron Johnson**

President  
National Support Center

**Ron Johnson** is president of National Support Center and a pioneer in the fledgling ISP tech support industry. Conceived and implemented after the release of Netscape Navigator 1.0, NSC paralleled the Internet's meteoric rise in popularity. The first to enter this new market segment and one of the few to succeed, NSC has been setting the standard in support, pricing and operational procedures ever since.

**Mark Kosters**

Chief Engineer  
Network Solutions Inc

**Mark Kosters** is currently chief engineer at Network Solutions, Inc. Network Solutions is responsible for security, routing and information servers. Kosters's other duties include serving as the principle investigator for the InterNIC project.

**Ivan Kotcher**

Manager-Strategic Consulting  
Dimension Enterprises

**Ivan Kotcher** is a senior industry analyst at Dimension Enterprises, a network design and architecture firm based in Herndon, Virginia. Kotcher specializes in Internet value-added services markets, with particular emphasis on competitive analysis. He is currently working on assisting carriers and others with Internet exchange development outside of the United States. Before Dimension Enterprises, Kotcher served as assistant director of the Commercial Internet Exchange.

# Major Sponsors and

## Keynote Speaker

John Sidgmore  
President and CEO  
of UUNET

Vice President of  
WorldCom

ISPCON has gained a unique reputation for providing quality educational sessions presented by industry leaders. Since the Internet industry is still in its infancy, these sessions cover a wide range of topics from ISP marketing to IP telephony, from this to that. Software, hardware and services all have a valid place among those who make a living in the Internet services industry. This year's show is representative of the Internet's scope, which has expanded into previously undreamed of areas. In addition to over 100 vendors exhibiting at ISPCON, sponsors including 3Com Corporation, Hewlett-Packard, Intel, and Sun Microsystems. Each come from a unique sector of the Internet industry.



## Keynote Speakers

John Sidgmore joined UUNET Technologies in June of 1994 as president and chief executive officer. Over the past four years, UUNET increased its annual revenues from \$7 million to \$600 million, and is now the world's largest Internet access provider with over 2,000 employees. Sidgmore steered UUNET through a series of rapid-fire mergers that expanded his company into a global presence. In 1995, UUNET launched the third most successful initial public offering on NASDAQ for that year. In 1996, UUNET joined forces with MFS Communications Co. in a merger valued at nearly \$2 billion. That winter, WorldCom, Inc. acquired both MFS and UUNET in the fourth largest merger in corporate history. Then in the fall of 1997, WorldCom announced a pending merger with MCI, potentially the largest merger in U.S. history. During the winter of 1998, WorldCom orchestrated a three-way transaction in which WorldCom/UUNET would acquire the infrastructures of ANS and CompuServe and secure a multi-billion dollar, five-year contract with AOL.

Before joining UUNET, Sidgmore was president and CEO of CSC Intelicom (formerly Intelicom Solutions). CSC Intelicom was the largest independent software company in the telecommunications industry, with about \$100 million in annual revenue and 600 employees worldwide. Sidgmore received his B.A. in Economics from the State University of New York in 1973.

Since 1976, John C. Dvorak has been stirring up the microcomputer industry. He started a software company in 1978 and by 1980 the business was so successful that he had to quit his job and run the company full time. At the same time, he began a newsletter called the *Software Review*.

In 1982, because of his knowledge of computers, contacts in the field, and writing skills, he was approached by CW Communications to edit a growing journal called *InfoWorld*. After two years at the position, two book contracts required that Dvorak concentrate on writing. In 1981 he dissolved his software firm and has been writing full time since.

His work appears regularly in *Boardwatch Magazine* as well as computing and networking magazines, and newspapers around the world. He has written numerous books including *Dvorak's Inside Track to DOS & PC Performance*, *Dvorak's Guide to PC Telecommunications*, *Dvorak's Guide to PC Connectivity*, and *Dvorak's Inside Track to the Mac*.

Dvorak does a weekly syndicated radio show, "Software/Hardtalk." Dvorak has appeared on "NBC's Nightly News" and "Overnight," and hosted "Computerworld Special Reports," as well as appearing in several other television venues.



## Keynote Speaker

John C. Dvorak  
Writer and  
Commentator



**T**he cognoscenti. The powerful. Those technically adept and in-the-know. ISPCON provides rare access to the people shaping the ISP industry from the top down, leaders whose billion-dollar businesses stretch across every inhabited continent and 22,000 miles into space. From programmers to CEOs to legal eagles, ISPCON speakers come from diverse fields of expertise.

As always, ISPCON is about variety, with pertinent sessions covering hardware, software, marketing, telephony, connectivity and services. Over 200 experts will speak at the Fall '98 show in San Jose, California. Here is a sample of the prominent presenters attending the show. For more information, check out the ISPCON web page at: [www.ispcon.com](http://www.ispcon.com).

#### Bernard Aboba



Senior Program Manager Internetworking  
Microsoft

Bernard Aboba is senior program manager for Internetworking at Microsoft. He leads the team designing virtual private network (VPN), remote access and routing, and management technologies for the Windows platform. Aboba previously lead the development of Internet functionality for the Microsoft Network, including deployment of the worldwide MSN TCP/IP network and MSN's Internet services for mail, news and Web. Aboba has written two books on the Internet, as well as more than a dozen Internet drafts. He remains in a number of IETF working groups, including RADIUS, PPP Extensions, Audio/Video Transport, MBONE Deployment and Roaming Operations. Aboba holds a Ph.D. from Stanford University, an MBA from UC Berkeley, and a BA from Harvard University.

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#### Eric Allman



Chief Technology Officer  
Sendmail Inc

Eric Allman is a well-known Internet pioneer and the author of sendmail, currently the Internet's dominant e-mail transfer software. Allman wrote the first version of the program in 1981 to route messages between the University of California at Berkeley's computer systems and ARPAnet, the government computer network that preceded the Internet. Sendmail's source code has always been openly available to all users, and over the years programmers and network administrators have contributed to its growth by deploying, developing, testing and refining the program as the Internet emerged. Sendmail is now the de facto implementation standard for e-mail transfer protocols on the Internet. More than one million copies of the freeware are installed, representing over 75 percent of all Internet mail servers. Allman continues to lead sendmail.org, the worldwide team of volunteers that maintains and supports the freeware product. While developing sendmail, Allman served as chief programmer on the INGRES database management project and was an early contributor to Berkeley UNIX, authoring syslog, tset, the troff-me macros and trek. Allman has also served as the chief technical officer at InReference, Inc., a Web-based search engine start-up; co-authored the "C Advisor" column for *UNIX Review* magazine; and has been a member of the Board of Directors of USENIX Association. Allman received a master of science degree in computer science from University of California at Berkeley in 1980.

#### Gabe Battista



Chief Executive Officer  
Network Solutions Inc

Gabriel Battista has served as chief executive officer of Network Solutions, Inc. since October 1996 and as a director since November 1996. As CEO, he is responsible for developing and implementing strategic planning initiatives for Network Solutions. Battista is responsible for overseeing development of corporate purpose, mission and objectives, business development programs, alliances and key customer relationships, identification, acquisition and development of key senior personnel, proactive development of NSI's governance policy, and acquisition of the capital resources necessary to meet the company's long-term objectives. Before joining Network Solutions, Battista served as CEO of Cable & Wireless, Inc., the nation's largest telecommunications services provider, exclusively providing businesses. Battista is also credited with leading the worldwide Cable and Wireless group in the development of a global Internet infrastructure. Battista received a BS in electrical engineering from Villanova University, MS in electrical engineering from Drexel University and an MBA from Temple University. Battista serves as director of Axent Tech Technologies Inc., Systems & Computer Technology Corporation and the Greater Washington Board of Trade. He is also a registered professional engineer in the state of Pennsylvania.

"This course is a must play for all Bay Area golfers. Back nine has great views and great holes. The signature hole #17 has a fantastic view and double fairway. Immaculately maintained, deep rough! Best public course in the Bay Area."

# Join Us...

...for the First **ISPCON West Classic** Golf Tournament and Barbecue held at **San Juan Oaks Golf Club** Monday, September 28

This championship links style course is one of only a few designed by former masters champion Fred Couples, and will be the host site of the 1998 Skins Game!

Sign up today for a chance to win exceptional prizes and play one of the best courses in the Bay area!

The day begins with a shotgun start on Monday, September 28 and finishes with a barbecue and refreshments! Cost is \$75 per player and includes green fees, cart, food, fun and prizes.

# Yes!

Sign me up for the **ISPCON West Classic** \$75 per player  
San Juan Oaks  
Golf Club

Use a photocopy of this form to register each additional player.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Company: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Payment Method

MasterCard

Visa

American Express

No.: \_\_\_\_\_ Exp. Date: \_\_\_\_\_



Registration deadline is September 4, 1998. Limited space available.

**Sponsored in part by** Rampart Associates, "The ISP Investment Bankers and Brokers" and



# And the sponsors are...

## Compaq

Compaq Computer Corp. is the world's largest computer manufacturer and designs, develops, manufactures and markets a range of computing and networking products.

## Ericsson

LM Ericsson Telephone Company is an international manufacturer of advanced systems and products for wired and mobile communications in public and private networks.

## Hewlett-Packard

Hewlett-Packard Company designs, manufactures and services more than 25,000 electronic products and systems for measurement, computing and communication.

## Intel

Intel, the world's largest chip maker, is also a leading manufacturer of computer, networking and communications products.

## Sun Microsystems

Sun Microsystems is a leading manufacturer of hardware, software and services for establishing enterprise-wide intranets and network computing systems.

# Luncheon



Al Wokas  
President and  
CEO  
MediaGate, Inc.

2

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 mediagate

ISPs: Next  
Generation Services!  
More Profits!

**Thursday,  
October 1, 1998,  
12:15 p.m.**

*Don't lose your customers to  
another ISP! Do better than survive!*

**A**lan Wokas is co-founder, president and CEO of MediaGate, Inc. and his primary interest in life — OK, second primary interest in life — is getting ISPs to generate more revenue and profit! Wokas will share with you his perspective on how the universal communication server platform will affect the ISP competitive landscape, what the next generation of killer apps and big money opps are, and why the MediaGate proposition is the best investment you can make in protecting your future.

In 1988, Wokas co-founded Rhetorex, Inc., which developed the first multi-line, DSP-based computer telephony board. Wokas was president and CEO of Rhetorex from 1988 to 1996. Rhetorex was subsequently acquired by Lucent Technologies. In 1981 he co-founded Vynet Corporation and served as its president and CEO until 1988. Vynet developed the world's first PC-based voice processing board. He earned a BS in electrical engineering from Michigan State University and completed all course work for an MBA degree at the University of Santa Clara.



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*Don't miss this opportunity to discover how  
to beat out your competition!!!*

"This course is a must play for all Bay Area golfers. Back nine has great views and great holes. The signature hole #17 has a fantastic view and double fairway. Immaculately maintained, deep rough! Best public course in the Bay Area."

# Join Us...

...for the First **ISPCON West**  
**Classic** Golf Tournament and  
Barbecue held at  
**San Juan Oaks Golf Club**  
Monday, September 28

This championship links style course is one of only a few designed by former masters champion Fred Couples, and will be the host site of the 1998 Skins Game!

Sign up today for a chance to win exceptional prizes and play one of the best courses in the Bay area!

The day begins with a shotgun start on Monday, September 28 and finishes with a barbecue and refreshments! Cost is \$75 per player and includes green fees, cart, food, fun and prizes.

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San Juan Oaks  
Golf Club

Use a photocopy of this form to register each additional player.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Company: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Payment Method

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Registration deadline is September 4, 1998. Limited space available.

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# INTERNET SERVICE PROVIDER CONVENTION

SEPTEMBER 28 - OCTOBER 1, 1998

San Jose McEnery Convention Center  
San Jose, California



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THE INTERNET MEDIA COMPANY

*Internet service providers  
are the most leveraged  
group involved with  
deploying a global Internet.  
From our perspective, they  
are the Internet.*

- Select from nearly 200 dynamic seminars, hands-on workshops and networking functions.
- Visit with more than 175 innovative suppliers exhibiting products and services to help your business be more productive.
- Share in the discussion of issues, ideas, and developments unique to the Internet industry.

Full conference registration for four days includes welcoming reception, exhibit floor, educational sessions and all coffee breaks and receptions for only \$595. (Discounts available for early registration.)

Register Now! (800) 933-6038, (303) 235-9510 or online at <http://www.ispcon.com>

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**BOARDWATCH**  
INTERNET ACCESS  
Guide to Internet Access and the World Wide Web



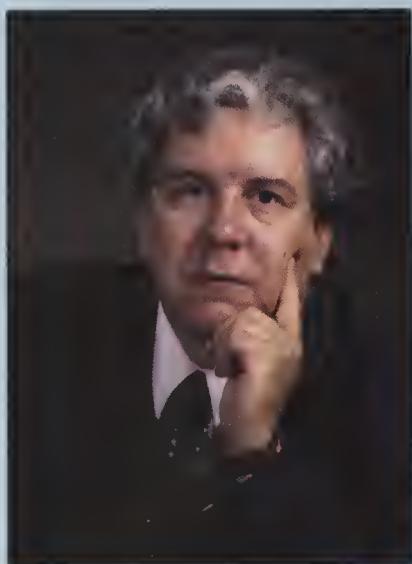
# AN INVITATION to attend the ISPCON Fall '98.

## INTERNET SERVICE PROVIDER CONVENTION

We would like to invite you to the largest national and indeed international meeting of Internet service providers ever held — this September 28 - October 1 at the San Jose McEnery Convention Center in San Jose, CA. The Internet Service Provider Convention (ISPCON) promises to be the most exciting gathering of the year, not so much because of what it is, but rather because of who is coming — a huge percentage of the 4,500 Internet service providers who actually operate the Internet and in so many ways large and small mold and shape its future.

Choose from an intense set of nearly two hundred educational sessions and seminars from broad legal and social issues to very specific technical sessions and marketing seminars detailing how to grow to success in Internet access.

So join us for the largest mass meeting of Internet service providers and related professionals ever gathered. The information, perspective, and contacts gained at this one event may change your business plans forever — and toward their ultimate success.



A handwritten signature in black ink that reads "Jack Rickard".

Jack Rickard  
Editor Rotundus Boardwatch Magazine



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# Register Now & Save!

**September 28 - October 1, 1998**

San Jose McEnery Convention Center  
150 W. San Carlos Street  
San Jose, California 95113

**Register Online at [www.ispcon.com](http://www.ispcon.com)**

Mail or fax with payment to: ISPCon Registration,  
13949 W. Colfax Avenue, Suite 250 Golden, CO 80401 Fax: (303) 235-9502



## ISPCon Registration\*:

Name \_\_\_\_\_  
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Address \_\_\_\_\_  
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Date \_\_\_\_\_

\*This form is for single registration only. Additional persons must register individually.

### Business Category: (please check only one)

<input type="checkbox"/> Internet Service Provider	<input type="checkbox"/> Internet Consultant
<input type="checkbox"/> Reseller/Var	<input type="checkbox"/> Cable
<input type="checkbox"/> MIS	<input type="checkbox"/> Telco
<input type="checkbox"/> Corporate Intranet	<input type="checkbox"/> Government/Education
<input type="checkbox"/> Hardware Manufacturer	<input type="checkbox"/> Application Developer
<input type="checkbox"/> Wireless/Satellite	<input type="checkbox"/> Other _____

## ISPCon Registration

ISPCon Fall '98 offers intensive networking, educational sessions and the most energized exhibit show floor in the industry. Full conference registration for three days includes it all, from the welcoming reception to complete access to the exhibit floor, hundreds of educational sessions and all coffee breaks and receptions. The registration fee for ISPCon Fall '98 is **\$595**, but discounts are available for early registration.

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## Register Early and Save!

### Registration Costs

Cancellations must be received in writing by August 17, 1998. Refund amount is the purchase price less \$75 processing fee. No refunds after August 17, 1998.

\$295	until	June 1
\$370	after	June 1
\$445	after	July 1
\$520	after	August 1
\$595	after	September 1

Those interested in exhibiting at ISPCon should contact your sales representative at (voice) 800-933-6038, 303-235-9510

**REGISTER NOW on the web <http://www.ispcon.com> OR FAX THIS FORM TO (303) 235-9502**

educational sessions in both presentation formats and meeting/discussion formats, addressing every aspect of operating an ISP business, a tiny fraction of which can be profiled in this brochure. These sessions cover business topics such as marketing, operational models, and how to value an ISP business. They also deal with inter-ISP operational policy issues such as peering, settlements, caching, QoS, performance measurement, and exchanges.

But many of the sessions do get technical. We had fifteen sessions on voice over IP networks at the spring show and actually expect more at the fall event as this area develops. Similarly, we have entire tracks devoted to virtual private networks, caching strategies, QoS, and other newly emerging products and services that alter the access business.

But it also covers and really reflects the ever evolving technologies of delivering Internet access through cable, wireless, satellite, xDSL technologies, and how to find the opportunities in IP telephony. There are even sessions dedicated to ISP exit strategies, mergers, acquisitions, initial public offerings, and how to value an ISP company.

Indeed, the more popular sessions center on finance, capital, and effective business techniques you can use to grow Internet access and service businesses. ISPCON has attracted a significant contingent of venture capital firms, investment bankers, accounting firms, and other service businesses working with service providers.

In an industry fueled by technological change, it comes as no surprise that technology always occupies a central role at ISPCON. Virtually every significant vendor of an Internet product at this point totally comprehends that if it doesn't sell among the Internet service

providers, it doesn't have a chance in the wider world of the Internet body politic. The corollary of course is that if you can capture the attention and enthusiasm of the ISP community, you have entrée into essentially the 60 million customers they, as a group, provide access to. That's incredible leverage through a scant 5,000 players. It may be one of the reasons ISPCON is steadily displacing larger shows as THE place to unveil the latest hardware and software developments in communication technology. This too is a double-edged sword. Some companies have unveiled products at ISPCON to enthusiastic approbation among ISPs and gone on to dizzying success in the wider world. Others have unveiled products at ISPCON, and after face-to-face conversations with ISP attendees, who can be frank at times, found that returning to the skunkworks to make some previously overlooked product changes BEFORE a wider launch has saved literally millions of dollars of time, effort, and resource. One thing is certain, few ISPs are of the personality type to just smile and take the free T-shirt. True and worthwhile interaction between ISPs and the developers who tool them is virtually a signature of ISPCON. And there simply isn't anyone more familiar with Internet end-users than the Internet service providers.

I am more enthused about our session schedule this fall than any we've previously presented. One aspect of gaining a position as THE meeting place for ISPs is that we get more and better proposals for sessions with each passing event. This fall's schedule is utterly overwhelming.

Keynoting the event is John Sidgmore, vice chairman and chief operating officer for WorldCom. Sidgmore served as CEO of UUNET before it was acquired by WorldCom, and remains CEO of the subsidiary. He now claims that fully 25



John Sidgmore



John C. Dvorak



Dave Barry

**Chris Vandenberg**

Lead Program Manager  
Microsoft

**Chris Vandenberg** has been with Microsoft since early 1995, working first in the MSN Systems group and later in the Internet Services Business Unit. His current role is strategic planning for the Commercial Systems Division. Vandenberg is a frequent speaker at various Internet-related events on such topics as Internet personalization, service creation and the use of MS technology by ISPs. He has published articles in *Data Communications* and the *Global Telecom Review* and has participated in Internet standards efforts for networking and management protocols. Vandenberg lives in Woodinville, Washington, with his wife and two sons.

**Steve Willis**

Chief Technical Officer  
Argon Networks

**Steve Willis** is the CTO of Argon Networks, a startup company focused on service provider gigabit switch routers. As a founder of Wellfleet Communications Willis was the co-architect of Wellfleet's revolutionary multi-processor, multi-protocol bridge-router that stimulated the high-performance routing industry to enable the modern Internet. Previous to Wellfleet, Willis was at another Massachusetts networking pioneer, Interlan.

**George Vanecik**

Vice President  
Inter-Tel, Inc.

Since 1995, **George Vanecik** has been a senior scientist for the Internet platform organization of AT&T Labs in San Jose, California. He has been driving the design and development of the GeoPlex platform, an internetworking product that will enable converging data and telephony networks. Before joining AT&T Labs, Vanecik was on the computer science faculty at Purdue University. In 1993, he introduced the campus to the World Wide Web technology by organizing campus-wide seminars on internetworking. His pioneering research focused on geometric modeling, collision detection, physical-based simulation, and virtual environments. During this time, he directed the Newton Project as part of the Computing About Physical Objects Group, and then the Isaac Projects. Prior to teaching at Purdue, Vanecik worked at the National Institute for Science and Technology (NIST) in the Engineering Design Lab and the Automated Manufacturing Research Facility. He also worked at IBM on large semantic networks support. As a student, he won second place in the ACM Programming Contest and numerous first place awards in other programming contests. Vanecik received his BS and MS in computer science from Purdue University, and his Ph.D. from the University of Maryland, College Park Campus.

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**Adam Viener**

Founder & President  
Cyberia Communications Inc

**Adam Viener** has been involved in online communications since the early 1980s. He and his wife, Sara, started Cyberia Communications, Inc. as a six-line BBS in June 1993. Cyberia has since grown into a profitable and expanding ISP and has recently been named the "Startup Company of the Year" by the Central Pennsylvania Technology Council. Viener is widely known for his ability to creatively market his business. The Viener's son, Addison, recently appeared on "NBC Nightly News with Tom Brokaw" and MSNBC. The live cribcam points to his son at [www.viener.com](http://www.viener.com).

ISPCON Fall '98  
SAN JOSE

The Call for Papers Has Arrived!

### Speak at ISPCON Fall '98

Sept 28 - Oct 1, 1998  
San Jose McEnery Convention  
Center, San Jose, California

Submit proposals online at:  
[www.ispcon.com/speakers/callforpapers.html](http://www.ispcon.com/speakers/callforpapers.html) or mail to:  
[ann.vogel@boardwatch.com](mailto:ann.vogel@boardwatch.com).

All materials must be  
submitted by:  
July 15, 1998

promises to be the most exciting and intense trade show event of the year. Nowhere will you find this many industry players, from this many different industry segments all focused on Internet access in one place at one time. It is the ultimate opportunity to rub shoulders with the movers and shakers in this industry, and the ultimate place to fine tune your own strategic vision of where the opportunities are in the center of the network.

Jack Rickard

PS. Yes, we did give away a brand new AM General Hummer vehicle valued at over \$75,000.00 at each of the last two shows. This has proven to be one of the most successful giveaways in all of the trade show industry. So yes, we're going to do it again. One lucky ISPCON attendee will drive home in an AM General Hummer vehicle.



# Preliminary Conference Agenda

## Monday

September 28

3:00 pm - 7:30 pm Registration Desk Open  
7:30 pm - 10:30 pm Welcome Reception

## Tuesday

September 29

7:30 am - 7:00 pm Registration Desk Open  
9:00 am - 12:00 noon Opening Session  
12:00 noon - 7:00 pm Exhibit Hall Open  
12:00 noon - 1:30 pm Lunch On Your Own  
1:30 pm - 2:30 pm Educational Sessions  
2:45 pm - 3:45 pm Educational Sessions  
3:45 pm - 4:30 pm Break in Exhibit Hall  
4:30 pm - 5:30 pm Educational Sessions

## Wednesday

September 30

7:30 am - 7:00 pm Registration Desk Open  
8:00 am - 8:45 am Morning Keynotes  
Continental Breakfast  
9:00 am - 10:00 am Educational Sessions  
10:00 am - 7:00 pm Exhibit Hall Open  
10:00 am - 10:45 am Break in Exhibit Hall  
10:45 am - 11:45 am Educational Sessions  
12:00 noon - 1:30 pm Lunch: Dave Barry  
1:30 pm - 2:30 pm Educational Sessions  
2:45 pm - 3:45 pm Educational Sessions  
3:45 pm - 4:30 pm Break in Exhibit Hall  
4:30 pm - 5:30 pm Educational Sessions

## Thursday

October 1

7:30 am - 6:00 pm Registration Desk Open  
8:00 am - 8:45 am Morning Keynotes  
Continental Breakfast  
9:00 am - 10:00 am Educational Sessions  
10:00 am - 6:00 pm Exhibit Hall Open  
10:00 am - 10:45 am Break in Exhibit Hall  
10:45 am - 11:45 am Educational Sessions  
12:00 noon - 1:30 pm Sponsored Lunch  
1:30 pm - 2:30 pm Educational Sessions  
2:45 pm - 3:45 pm Educational Sessions  
3:45 pm - 4:30 pm Break in Exhibit Hall  
4:30 pm - 5:30 pm Educational Sessions  
5:45 pm - Hummer Drawing

Conference Adjourns

## A Note About Yom Kippur

Please note that due to a scheduling conflict, ISPCON coincides with the Yom Kippur holiday on Wednesday, September 30th. We regret this circumstance and have taken all necessary measures to ensure that such a conflict will not occur at any of our future events.



**Robert Rini**

Attorney  
Rini Coran & Lancellotta PC

**Robert Rini** specializes in the representation of broadcast, cable, Internet and wireless interests before the FCC, Congress, the courts and other federal and state administrative agencies. Rini is also active in the areas of trademark and copyright. He is the author or co-author of numerous articles and primers on new technologies and has lectured about telecommunications topics at various workshops and conferences. He is an acknowledged leader in the area of wireless technologies. Rini was born in Brooklyn, New York, and raised on Long Island. He attended the State University of New York at Albany where he graduated in 1982 cum laude with a BA in Public Affairs and with honors in Political Science. He attended the Columbus School of Law at The Catholic University of America from 1982 to 1985 where he received his JD degree. Rini was a member of the first class to graduate from the certificate program of the Institute for Communications Law Studies at Catholic University.

**Shirish Sathaye**

Vice President of Engineering  
Alteon Networks

As vice president of Engineering, **Shirish Sathaye** is responsible for all product and technology development programs at Alteon Networks. With over 12 years of internetworking experience, Sathaye has extensive expertise in both the software and hardware aspects of high-speed switch development, including ASIC design, software engineering and network architecture. Previously, Sathaye was product group director for Fore Systems' Enterprise ATM Switching Group. He led the development and release of a number of Fore's ATM switch products, including the ForeRunner LE 155, ASX-200BX and the ASX-1000. Before Fore Systems, Sathaye spent several years with Digital Equipment Corporation in semiconductor operations. He has also worked in the Network Business Unit for Digital. Sathaye received his Ph.D. in computer engineering from Carnegie Mellon University, his MS from Virginia Polytechnic Institute and undergraduate degree in electrical engineering from the Institute of Technology in India.

**Paul Stapleton**

Senior Vice President  
Rampart Associates Inc

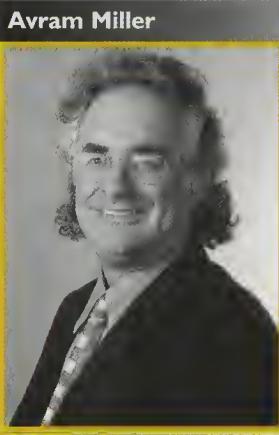
**Paul Stapleton** is senior vice president at Rampart Associates, Inc., an Internet investment bank. Stapleton also speaks and writes extensively about business and the Internet. He is the financial columnist for *Boardwatch Magazine* and the editor of *I\$P Report - The Financial Newsletter for Internet Service Providers*. Prior to joining Rampart, he ran an Internet focused financial consulting firm from 1993 to 1997. Clients have included EarthLink Network, Inc., Excite Inc., Infobeat Inc., MCI, Microsoft, News Corporation, Ziff-Davis, Coopers & Lybrand, Dvorak Development, Opus Capital, Cyberspace Development and InfoNow. He has negotiated and structured hundreds of strategic Internet business relationships. Stapleton's early career experience is in banking and publishing. He has an MBA from Columbia Business School, a BSFS from Georgetown University School of Foreign Service and an IBD from Nijenrode, The Netherlands School of Business.

**Don Rule**

Program Manager  
Microsoft

**Don Rule** is a program manager in the NT networking team responsible for virtual private network products. Rule contributes to the Microsoft Commercial Internet System that provides Internet accessibility for MSN subscribers. He is also principal consultant with Microsoft Consulting Services. Before joining Microsoft, Rule was the manager of Systems Engineering and director of MIS for a large international corporate network.





**Avram Miller**  
Corporate Vice President  
Director, Business Development  
Intel

**Avram Miller** is corporate vice president and director of Business Development for Intel. He is charged with the development of new business initiatives and the establishment of many externally focused business relationships. These include the formation of strategic alliances with major corporations as well as equity participation in early stage companies. Miller joined Intel in 1984, was promoted to group vice president in 1989, and was appointed corporate vice president in January of 1996. Today his focus is on the convergence of communications, computing, and consumer applications. Miller remains active in developing business opportunities that will connect personal computers in homes to multimedia-rich content and applications through a variety of broadband mechanisms, including cable, satellite, xDSL, and wireless systems. He has held professorships at the Medical School of Erasmus University in Rotterdam and the Medical School of Tel Aviv University. He is on the Board of Trustees for the California Institute of the Arts. He also serves as chairman of the board of directors of Plugged-In, a non-profit organization founded to bridge the technological gap between East Palo Alto, California, and the Silicon Valley.



**Doug Mohney**  
Director of Marketing  
SkyCache  
Boardwatch Columnist

**Doug Mohney** is the streaming media columnist for *Boardwatch Magazine* and has been published in the *Washington Technology*, *LA View*, and *The Washington Post*. He also contributed to the *Internet World Guide to Webcasting* from Wiley Computer Publishing. In his day job, he is the Director of Marketing for SkyCache. Prior to joining SkyCache, Mohney was hired No. 10 at a budding Internet service provider, DIGEX, in 1993. Starting as a sales representative, he held a variety of positions, including director of marketing and product manager. As the company expanded, he handled a range of duties including public relations, print advertising, and direct mail. In the fall of 1996, Mohney became manager of ISP-TV unit, an experimental test bed for Internet broadcasting. During his tenure, ISP-TV received recognition as a leader in developing techniques for live video broadcasting over the Net.



**Pushpendra Mohta**  
Executive Vice President  
TCG CERFnet

**Pushpendra "Push" Mohta** has been with TCG CERFnet since its inception, responsible for guiding the development of one of the most robust ISP backbones in the industry. Mohta remains active in a variety of international Internet standards and program committees. CERFnet was one of the original members of the National Science Foundation Network (NSFNet), predecessor to today's commercial Internet. The post-NSFNet organizations remain the backbone of the Internet. These firms are moving away from the congested NAPs to private peering. CERFnet's fast-packet deployment strategy. Mohta has established Internets in more than a dozen countries, including Brazil, Fiji, India, Korea, Mexico, the United Arab Emirates and Venezuela. Mohta continually searches for new alternatives for meeting business' future communications and commerce needs. Mohta holds an MS in computer communication systems and theory from the University of California, San Diego. He serves on the TCG's Management Committee and on Compaq Computer's Telecom Advisory Board.



**Timothy O'Reilly**  
Founder and President  
O'Reilly & Associates

Timothy O'Reilly has co-written numerous technical books, including *UNIX Text Processing*, *Managing UUCP* and *USENET*, *The X Window System Programming Manual* and *The X Toolkit Intrinsics Programming Manual*. O'Reilly's publishing company produced one of the first commercial sites on the World Wide Web, a stepping-stone inspiration in the development of the Mosaic browser, Netscape and other later browsers. The O'Reilly Web Site server was the first server designed for Windows NT and Windows 95.

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Building Tomorrow's Internet  
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DSL Technology Issues for the ISP  
The New Commercial Internet — Where Do We Go from Here?  
A Recap of Merger and Acquisition Activity  
Designing an Internet Telephony Network  
Internet Telephony  
Profitable Sales Strategies for the ISP  
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The Current State of E-Commerce, 2nd Annual Address to ISPs  
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Routing — Snapshots of a Growing Network  
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Predicting the Growth and Change of the Internet  
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Developing and Managing an IP Telephony Network  
High-speed Wireless Internet Access  
Guerilla Marketing  
Jacks or Better — Requirements for Large-Scale Network Cache

Virtual Private Networks — Beyond Tunneling  
Caching Is Hot, But Can Be An Administrative Nightmare  
ISPs As Brands Versus Commodities  
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ATM — Just the Ticket for Scaling the Internet Backbone  
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Internet Edge Servers — New Avenue for Selling More Services  
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ISP + Virtual Community = Added Value  
Linux — An Efficient ISP Platform  
Niche ISPs and Their Success Stories  
New Business Opportunities with Internet Multimedia  
How Can Small and Medium ISPs Stay in the New Services Game?

9

**Win A HUMMER!**

We're doing it again. Every ISPCON Fall '98 attendee has an equal chance to win an AM General Hummer. You have to be present as the convention closes on October 1 to win and you should be prepared to drive it away. Ask Steve Wilcox, an ISP in Monument, Colorado, who drove one home from ISPCON in San Francisco last September. Or ask Chris Candreva, an ISP in Rye, New York, who drove one home from the Baltimore convention in March. Someone will find his or her way home from San Jose in a Hummer.



**Rudolph Geist**  
Attorney  
Wilkes, Artis, Hedrick & Lane

Rudolph J. Geist is a telecommunication attorney with the Washington, DC, firm of Wilkes, Artis, Hedrick & Lane. The firm specializes in defining and developing Internet law. He regularly publishes in the areas of telecommunications and Internet regulatory policy, including columns for *Boardwatch Magazine*, *ISP Today Magazine*, and *ISP Report: The Financial Newsletter for Internet Service Providers*. Geist represents ISPs in matters before the FCC, Congress, and state bodies, including relations with other telecommunications providers, carrier certification, and USF discount programs. Geist received his law degree from the Communications Law Institute at the DC-based Catholic University of America. At Catholic, Geist served as lead articles editor of *CommLaw Conspectus: Journal of Communication Law and Policy*. He graduated magna cum laude and Phi Beta Kappa with an honors interdisciplinary degree in communications law from Temple University.



**Howard Gittleson**  
Director of Internet Security Products  
Bell Laboratories

Howard "Howie" Gittleson is director of the Internet Security Products Group at Bell Laboratories at Lucent Technologies. He leads the Lucent Managed Firewall project. Gittleson has 19 years of experience in Operations Support Software, including software development and system testing; product management and OS business development in international markets (in Europe, the Asia/Pacific region, and Central and Latin America); and network management systems engineering and architecture. Gittleson began his Bell Labs career in 1978 testing software and developing systems. He became a technical manager in 1983, responsible for system testing for Special Services Testing Products. He was named department head in 1987. In 1990, Gittleson became product team leader for SARTS Special Services Testing. He became director of Network Management Integration Planning in 1994. Gittleson holds a BS degree in physics from McGill University, Montreal, and master's and Ph.D. degrees in experimental high-energy physics from Harvard University.



**Eric Goldman**  
Attorney  
Cooley Godward LLP

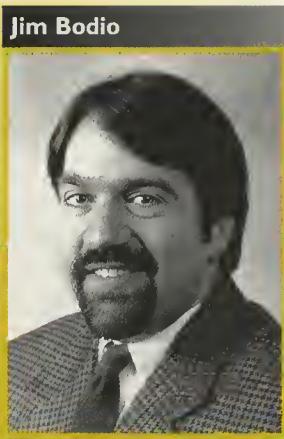
Eric Goldman (formerly Eric Schlachter) is an associate in the business department at the law firm of Cooley Godward, LLP, Palo Alto office. He joined the firm in 1994. Goldman represents high technology and emerging growth companies in a wide variety of intellectual property transactions, commercial contracts and general business issues. Goldman's practice emphasizes the needs of companies doing business in cyberspace. He is an adjunct professor of Cyberspace Law at the Santa Clara University School of Law. In addition to publishing articles on sysop liability in the *Hastings Communications and Entertainment Law Journal* and on copyright and the Internet in the *Berkeley Technology Law Journal*, Goldman has published articles on cyberspace topics in numerous business, legal and technical periodicals. He has also given presentations on cyberspace topics at more than a dozen conferences. Goldman received his JD in 1994 from the UCLA School of Law. He was an editor of the *UCLA Law Review* and received three American Jurisprudence awards. Concurrently with his JD, Goldman received an MBA in entrepreneurial finance from the Anderson Graduate School of Management at UCLA. He was elected to Beta Gamma Sigma. Goldman received his BA in economics and business, summa cum laude, from UCLA in 1988. He was elected to Phi Beta Kappa and was named a Chancellor's Marshall for distinguished university service. Before attending graduate school, Goldman worked as a senior analyst at a commercial real estate company. Goldman is a member of the State Bar of California.



**Doug Humphrey**

President  
SkyCache

Doug Humphrey is the founder of DIGEX, a 1991 basement startup ISP that grew into a \$150 million ISP before being sold to Intermedia Communications in 1997. Finding retirement dull, Humphrey has started several ventures, including SkyCache, a Web caching firm and collocation company.

**Jim Bodio**

Technology Manager  
Intel

**Jim Bodio** is a technology manager for Intel's Network Systems Operation, a division that develops infrastructure and management tools for campus networks. Bodio is responsible for improving quality and has been working on Internet and WAN related technologies since 1994. Over the last 13 years, Bodio has worked a number of jobs for Intel. As product line manager for Internet server solutions, Bodio helped develop Internet access and presence for small business through PC server OEMs. He helped pioneer one of Intel's first marketing efforts on the Internet. He also served in product marketing and marketing communications on NetportExpress' print servers and StorageExpress' backup servers.

**Eric Bakri Boustani**

Business & Intellectual Property Lawyer  
Davis & Schroeder PC

**Eric Bakri Boustani** received a certificate in High Technology Law from Santa Clara University School of Law. He graduated cum laude from the San Francisco State University with a BS in Business Administration and an emphasis in Computer Information Systems. Prior to attending law school, Boustani worked as a programmer and systems analyst. Since admission to the bar in California, he has pursued intellectual property and litigation cases with Davis & Schroeder. Boustani has been involved in several large Internet domain name disputes and helped many businesses to protect their intellectual property on the Internet. He regularly lectures on the dangers and opportunities of doing business on the Internet.

**Matthew Burnett**

President  
Wireless Internet LLC

**Matt Burnett** is president of Wireless Internet LLC, a company offering wireless communications to corporate end users. His clients include Hughes Research Lab, Airtouch Communications and Orange County, California. Burnett has four years of research in the wireless data industry and three years experience in Internet site development. He also published a technical article specifying wireless Internet application. Burnett holds a master's degree in industrial psychology with a specialty in usability testing in software design and has devoted four years to wireless research and development.

**Steve Berman**

President  
Homenet Communications Inc

**Steve Berman** is president of Homenet Communications, Inc., an ISP in Warner Robins, Georgia. Berman is one of the founders of Homenet, and is currently focusing the company's resources on wireless Internet and data applications. Homenet has built and maintained wireless networks since August 1996, and has been an ISP since June 1995. Before starting Homenet, Berman was a contractor for the Air Force, working on networks at Robins AFB, and has served in various technical, management and consulting positions for over 15 years, including projects for Ameritech, the United Nations, and SAIC. Berman holds a BS degree from the University of New Hampshire.

Senior VP  
Consulting Services Division  
Network Solutions Inc

**Bruce Chovnick**

**Bruce Chovnick** is the senior vice president and general manager of the Intranet Services Division of Network Solutions, Inc. Chovnick is responsible for the growth and expansion of the division's intranet consulting business, an internationally recognized industry expert in business and technical corporate extranet strategies. Before joining NSI, Chovnick was vice president of Global Internet Solutions at GE Information Services, Inc. where he led both the Internet and Network Services divisions. In 1996, under Chovnick's leadership, GE Information Services delivered a record number of Internet-based services to the market. In addition, Chovnick founded Actra Business Systems, a joint venture between Netscape Communication Corporation and GEIS. Previously, he led GE Information Services' worldwide network engineering and software development.



# ISPCON UPDATE

## Dear ISPCON attendees:

Exhibitor participation in ISPCON has hit an all time high. It is now three months before the Fall '98 ISPCON and 120 companies have signed up to participate ... two more than exhibited last year in the San Francisco Hilton and Nikko hotels. More exhibit space has been sold than was occupied in Spring '98 in Baltimore. This means more products and services for you to touch and feel and more space to do it in.

As you may be aware, Mecklermedia Corporation acquired ISPCON and *Boardwatch Magazine*. Mecklermedia is the producer of the Internet World trade shows, Internet World weekly newspaper and the internet.com Web site. As an Internet media company, our objective is to create the most synergistic and dynamic opportunities for attendees to meet with the entire Internet industry.

Since the announcement of the Sun Microsystems sponsored Dave Barry lunch, Wednesday, September 30, MediaGate has announced a sponsored lunch for Thursday, October 1, to make an important announcement to the industry. With all the sponsored events at Fall '98 ISPCON (breakfasts, lavish coffee breaks, lunches and sponsored evening parties) you should not have to buy a meal for yourself from Monday evening through Friday morning. You might even drive home in an AM General Hummer.

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Our intent is not to change the character of ISPCON, but to enhance its well established benefits to Internet service providers and others involved in managing the Internet.

If you should have questions or concerns regarding the events, please do not hesitate to call us at 800-933-6038. Thank you for your continued participation as we strive to respond to your every need.

Sincerely,

Ronald A. Fipperger  
Trade Show Director

# Who's New...

The latest listing of companies exhibiting at ISPCON Fall '98

Booth	Company
1232	Comfax
1315	1-800 Support
621	3Com Corp
811	AboveNet
1131	AccuWeather
1133	AcuComm
1317	ADSL Forum
1440	Allot Communications
638	Alteon Networks
252	Amplify.net
1238	Andromedia
440	Ascend Communications
449	Assured Access
452	Assured Digital, Inc.
1331	Balboa Capital
612	Bay Networks
1417	Bigfoot
432	Boardtown Corporation
802	Boardwatch Magazine
1035	C&W Leasing
632	CacheFlow Inc
625	Cisco Systems Inc
1027	Compaq Computer Corp
1138	DES, Inc.
1231	DPEC
534	Dun & Bradstreet
1236	Eagle Communications
1245	Ericsson
929	Fine Point
1318	Funk Software
528	GRIC Communications
436	GTE
1431	Hallmark Computers
905	Hewlett-Packard
945	Hewlett-Packard
1202	HolonTech Corporation
1002	iBeam Broadcasting

# ISPCON UPDATE

Booth	Company	Booth	Company	Booth	Company
82	IBM	1139	RAScom	825	THiIN Line
1214	IC Verify Inc	1021	SAVIS Communications	1333	Thrust World
424	Icon CMT Corp	1235	Seachange Corp	431	Tiara Networks
1036	InfoLibria, Inc	1039	Seattle Lab	1032	Torrent Networking
649	Inktomi	1338	Sendmail		Technologies
839	Intel Corp	609	Sentient	1017	Transend
1117	Internet Finance & Equipment	1033	Server Technology	1015	TUCOWS
1337	InterPacket Group	1034	Shadow Solutions	1421	Tut Systems
552	IntraNET Software	1132	Silkstream Corp	1441	US West
131	Ipswitch	428	SkyCache		Communications
1100	ISP Power Corporation	1038	Solect	529	V-One
1116	ISPNet	1221	Solunet	1334	Vallon Inc
100	ISPNews Inc	635	Source Technology	1025	Verio
1009	LookSmart Ltd	1213	Spectrum Information	1239	Vircom
645	Lucent Technologies	1031	SPS	1332	VirtualPlus
433	Marner International	641	Starcom	1436	WatchGuard
605	MediaGate	829	StarNet, Inc.	832	Web Site Garage
1114	Mediaring, Inc.	1134	Structured Internetworks	1113	WebTrends Corp
1439	MGC Communications	445	Sun Microsystems	1115	Wi-Lan, Inc.
835	Microsoft	1335	Supernews	1013	XCom Technologies
142	Mirror Image Internet	531	Systems Express	817	Xedia Corp
1445	MoovinCool	533	Teknema	434	Xplex Networks
1241	Mutiactive Technologies	530	Telephony	1438	Zoom Telephonics, Inc.
800	Multi-Tech Systems	1041	The Internet Factory		
1216	N2H2 Inc				
1218	NetCentric Corp				
245	Netopia Inc				
1224	NetPartners				
459	NetSurfer, Inc.				
1400	Network Computing Architects				
0	Network Solutions				
801	Network Two				
430	Nokia IP Inc				
249	Nortel				
1200	Osicom				
1454	Personal Productivity Tools Inc				
814	Planet Direct				
1136	Pluris, Inc.				
629	PSINet				
1434	Quad Research				
809	RadioConnect				
1233	Ramp Networks				

## Exhibit Sales

Interested in exhibiting?  
Call today for rates and  
space availability.

Jon Price, Director of Exhibit Sales

E-mail: [jprice@mecklermedia.com](mailto:jprice@mecklermedia.com)

Bob Holley, Exhibit Sales Manager

E-mail: [bob.holley@boardwatch.com](mailto:bob.holley@boardwatch.com)

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Ronald A. Fippinger  
Trade Show Director

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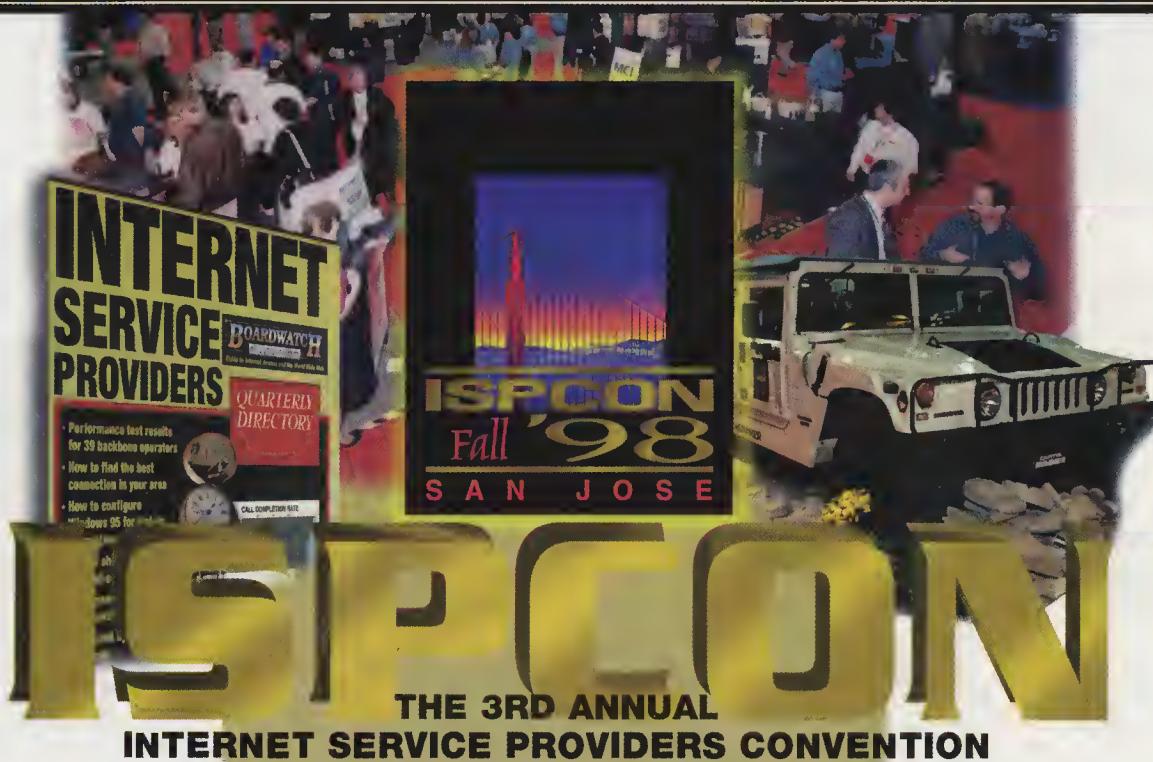
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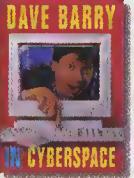
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# Registration Form

September 28 - October 1, 1998

San Jose McEnery Convention Center  
150 W. San Carlos Street  
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**Register Online at [www.ispcon.com](http://www.ispcon.com)**

Mail or fax with payment to: ONE, Inc., ISPCON Registration,  
13949 West Colfax Avenue • Suite 250 • Golden, CO • 80401 Fax: (303) 235-9502

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\*This form is for single registration only. Additional persons must register individually.



## ISPCON Registration Information

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## Register Early and Save!

### Registration Costs

\$295	until	June 1
\$370	after	June 1
\$445	after	July 1
\$520	after	August 1
\$595	after	September 1

### Business Category: (please check only one)

Internet Service Provider       Application Developer  
 Reseller/Var       Cable Television  
 Corporate/MIS       Government  
 Hardware Manufacturer       Education  
 Software Publisher       Other \_\_\_\_\_  
 Wireless/Satellite       Telco

Cancellations must be received in writing to ONE, Inc. by August 17, 1998. Refund amount is the purchase price less \$75 processing fee.

No refunds after August 17, 1998.

For hotel reservation information please visit our web site at [www.ispcon.com](http://www.ispcon.com)

Those interested in exhibiting at ISPCON, should contact their sales representative at: (800) 933-6038 or (303)235-9510

**REGISTER NOW on the web <http://www.ispcon.com> OR FAX THIS FORM TO (303) 235-9502**